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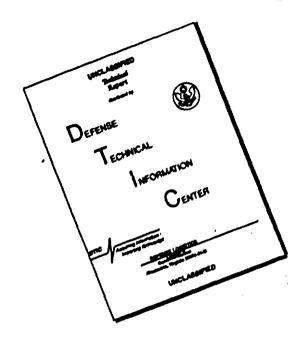
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# U. S. NAVY HINDCAST SPECT WAVE MODEL CLI NORTH PACIFIC O

**MARCH 1985** 

PREPARED BY
NAVAL OCEANOGRAPHY COMMAND DETACHM

PREPARED UNDER

COMMANDER, NAVAL OCEANOGRAPHY

NSTL, MS 39529

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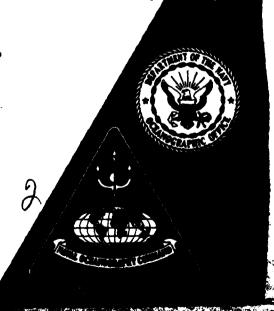
# TRAL OCEAN IMATIC ATLAS: OCEAN

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14. MONITORING AGENCY NAME & ADDRESS(II different from Controlling Office) 15. SECURITY CLASS. (of this report) 154. DECLASSIFICATION/DOWNGRADING 16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited. 17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on teverse side if necessary and identify by block number) Spectral Ocean Wave Model (SOWM); Grid, Wind Speed & Direction; Significant Wave Height, Primary Wave Direction, Wave Slope Parameter, Modal Wave Period, Directionality of the Waves, Isopleth Analyses, Contingency, Durations and Intervals. Atlas. 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This pilot atlas introduces a new, numerically derived, historical data set in the form of a wind and wave climatology. Existing wave climatologies are

primarily based on visual ship observations, these climatologies may be unreliable, particularly in data-sparse regions. This atlas provides the design, scientific and operational communities with a detailed representation of the overall wave climate of the whole North Pacific Ocean.

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### **FOREWORD**

Based upon previous atlas work prepared at the National Climatic Data Center for the Naval Oceanography Command Detachment, Asheville, it was recognized that there was a need for an objective climatology of the wave environment. An ad hoc committee of wave experts was established to pursue this idea.

The development of a Spectral Ocean Wave Model (SOWM) by Dr. Willard J. Pierson, Dr. Ledolf Baer, Dr. J. Tick, and Dr. R. Salfi, and the operational implementation of this model by Fleet Numerical Oceanography Center FLENUMOCEANCEN made it possible to attempt such a project. The SOWM was used to generate spectral wave data at FLENUMOCEANCEN using historical wind and pressure fields. The model was run in a hindcast mode, and produced 12.5 years of data for the North Pacific Ocean on which this atlas is based.

### **ACKNOWLEDGEMENT**

This atlas was prepared for the Commander, Naval Oceanography Command and coordinated by the Naval Oceanography Command Detachment. Asheville, North Carolina. Work was performed by the National Climatic Data Center.

Specific acknowledgement is made to members of the National Climatic Data Center: project leader, Mr. Thomas R. Karl; Mr. Ronald G. Baldwin for his computer programming; Messrs. Charles Thomason and William Brower for their isopleth analyses; Messrs. Joe D. Elms and Michael J. Changery for their suggestions and consultation; Mr. Michael Burgin and his assistants, Mr. John Thomas and Ms. Carolyn Herman, for their technical work; Ms. Laura K. Metcalf for her data processing assistance; and Mrs. Phyllis E. Taylor for the typing of the equations and to Mrs. Virginia Pressley for the final typing of the text.

Credit is also given to Ms. Susan Bales, and Mr. Gregory F. Neushaffer of the David Taylor Naval Ship Research and Development Center; Mr. Sheldon Lazanoff of Science Applications International, Inc.; LCDR A. K. Trapp and Mr. Brian Wallace of the Naval Oceanography Command Detachment, Asheville, for their comments and suggestions.

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### ISOPLETHS

WIND SPEED ( $\leq$ 10 and  $\geq$ 34 KNOTS)

WAVE HEIGHT (<5 and <8 FEET)

WAVE HEIGHT ( $\geq$ 12 and  $\geq$ 20 FEET)

WAVE SLOPE ( $\alpha$ ) ( $\leq 0.05$  and  $\geq 0.10$ )

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### INTRODUCTION

Existing wave climatologies are primarily based on visual ship observations. These climatologies may be unreliable, particularly in data-sparse regions. Shipborne wave recorders have provided reliable wave data for selected areas of the oceans, but a scarcity of these data remains. This atlas introduces a new, numerically derived, historical data set in the form of a wind and wave climatology. It is intended to provide the design, scientific and operational communities a more accurate representation of the overall wave climate of the North Pacific Ocean than is available from other sources.

### **BACKGROUND**

In December 1974 the Fleet Center FLENUMOCEANCEN Oceanography conjunction with the Naval Oceanographic Office (NAVOCEANO) adopted the Spectral Ocean Wave Model (SOWM) developed by Dr. Willard J. Pierson and others to produce operational spectral wave data for the Northern Hemisphere. The SOWM is a computer-based procedure that produces a directional variance spectrum at specified grid points spaced at up to 180 nautical mile This spectrum defines the sea intervals. surface at each grid point through a two-dimensional (direction/frequency) matrix of 12 directions and 15 frequency bands. Further information on the theoretical basis of the SOWM is contained in Appendix A.

At the Seakeeping Workshop in July 1975, the rationale and structure of a hindcast wind and wave climatology were developed. It was concluded at that time that the hindcast climatology be intended to provide a statistical basis for evaluating the effects of the environment.

A jointly funded project by the U. S. Navy, the National Oceanic and Atmospheric Administration (NOAA), and the Department of Defense in the 1960's and early 1970's had assembled a data base containing ship observations as far back as 1854. A major goal

of the effort was to produce a marine environmental history. In 1976, this new historical data base was combined with existing pressure analyses to produce a reanalysis of Northern Hemisphere sea-level pressure on a 63 x 63 grid at 00Z, 06Z, 12Z, and 18Z. The reanalysis was performed by Meteorology International, Inc. (MII) using a comprehensive technique for the objective analysis of scalar and vector fields called "Fields by Information Blending" (FIB) Mendenhall et al. (1977).

Once the pressure fields were produced, wind fields (speed and direction) were computed. Using these modeled winds, FLENUMOCEANCEN generated a spectral wave field, which was forwarded to the David Taylor Naval Ship Research and Development Center (DTNSRDC) for analysis. Appendix B provides further information on the FIB technique and on the generation of the wind fields.

In order to summarize a set of spectra, it is often useful to generalize the most significant characteristics. DTNSRDC, with Operations Research, Inc. (ORI), developed computer programs to derive a number of numerical parameters from the spectral wave data. The National Climatic Data Center (NCDC) used many of the concepts from these programs and others written by FLENUMOCEANCEN to devise a parameterization routine which was used for this atlas.

### OVERVIEW I. PARAMETERS

This atlas climatological contains summaries for seven parameters. Four of these parameters have already been summarized in other climatic atlases (U. S. Navy, 1977). include wind speed and direction, significant wave height (hereafter referred to as the wave height), and wave direction, i.e., the direction from which the highest waves are moving (hereafter referred to as primary wave direction). The other three parameters contained in the wave climate summaries for this atlas are: wave slope parameter, modal wave period, and directionality of the (hereafter referred to as the directionality). These three parameters have not appeared in previous U. S. Navy climatological atlases, because they cannot be directly derived from visual observations. However, they can be very important operating considerations. Appendix C provides a complete description of all seven parameters. A brief description of the wave slope parameter, modal wave period, directionality follows.

The wave slope of a regular wave is defined as the ratio of wave height to wave length. is not normally reported, but it can be obtained from the output of the SOWM or from the frequency spectrum of a wave record. rolling and hence stability is affected by the wave slopes of the higher waves encountered. The wave slope parameter is directly related to the wave slope. Therefore, the higher the wave slope parameter, the higher the wave slope. Table C3 in Appendix C relates the wave slope parameter to values of the wave slope at a fixed point. Steep waves are usually associated with wave slope parameters of 0.10 or more, while values of less than 0.05 are usually associated with more moderate conditions.

The modal wave period is defined in terms of the frequency spectrum. It is the period associated with the maximum wave energy in the wave spectrum. Modal wave periods associated with wave lengths about 0.75 and 1.25 ship lengths (depending on ship course and speed) can cause resonance pitching and heaving. The modal

wave period is not necessarily equal to the wave period associated with the higher of the two waves, the sea or the swell as summarized in the past U. S. Navy climatologies (U. S. Navy, 1977).

The directionality is a measure of the uniformity of the direction of movement of the waves. If the waves are all moving in a uniform direction then the directionality is equal to one. When there is no preferred direction of wave movement (a completely confused sea state) the directionality takes on the value of 0. Obviously, ship response and maneuverability can be affected by the directional spread of the wave energy.

### II. DATA

Data in this atlas are derived using winds and waves from the period September 1964 to February 1977, i.e. 12.5 years. Computer processing difficulties during the generation of the SOWM hindcast data caused the number of hindcasts to vary among grid points. As a result, approximately 1% of all the data were lost during the 12.5-year hindcast period, 1964-1977. This small percentage is unlikely to have any significant effect on the analyses.

The first 9.5 years of wind fields were derived by using the historical sea-level pressure analysis as derived from the FIB technique. The last three years of wind fields were obtained from the initial operational wind fields generated by FLENUMOCEANCEN (Lazanoff, 1981). Appendix B contains further details.

### ISOPLETH ANALYSES

Isopleth analyses were completed for various thresholds for the percent frequency of wind speed, wave height, and the wave slope parameter. These analyses were based on nearly 250 grid points, 63 of which are also used in tabular presentations. All points are depicted on the North Pacific Ocean map (Fig. 1). The 63 grid points also used in tabular summaries are listed in Table 1.

Isopleth analyses are not shown in areas of shallow water (< 100 fathoms). The gray line in Fig. 1 is in fact the 100 fathom isobath. In the Bering Sea this boundary roughly coincides with the mean position of the late winter and early spring ice edge. In some years the ice edge will be south of this position (Naval Oceanographic Office, 1969) so caution should be used in interpreting wave conditions in the vicinity of the 100 fathom isobath, particularly during late winter and early spring.

### CONTINGENCY TABLES

Contingency tables for 63 grid points are presented for the following elements:

- (1) Wind direction and speed;
- (2) Wave height and wind speed;
- (3) Wave height and wave slope parameter;
- (4) Wave height and period;
- (5) Wave height and directionality;
- (6) Wave height and primary wave direction;
- (7) Primary wave direction and wind direction.

Fig. 1 GRID POINT-SUBPROJECTION AND SEQUENCE

130 140 150 160 170 180 170 110 120 176-3 140-3 6-17 98-3 122-3 124 31-3 50 36-3 67-2 156-7 309-1 40 • 26 62-2 109-2 285-1 152·2 35 296-1 207-7 • 33 • 34 127-2 82-2 251-1 236-1 267-1 30 **4**3 185-2 44 46 209-1 181-2 49 1**75-1** 231-2 20 197-1 200-1 160-1 158-2 • 57 117-1 **203-1** • 58 • 60 10 57-1 •63 ; \ 0100 130° 120 150° 160° 170° E 110 140° 180° W 170° 160

### AND SEQUENCE NUMBERS

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9

TABLE 1
GRID POINTS INCLUDED IN TABULAR SUMMARIES

25	SUBPLO BY	TOTECTION 1	3071	30 /	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	SUGADO PO	MORCHION (AR)	300, 1000	, 30), /
1	176 – 3	64.0 N	166.7 W	ſ	33	285 – 1	34.6 N	145.9 E	
2	140 – 3	59.4 N	172.0 W		34	296 – 1	34.2 N	155.1 E	
3	179 ~ 3	58.5 N	151.6 W		35	152 – 2	34.2 N	163.8 E	1
4	98 – 3	56.8 N	174.8 E		36	207 – 7	33.7 N	123.9 E	
5	197 – 3	56.8 N	141.9 W		37	175 – 4	32.9 N	119.4 W	l
6	122 – 3	54.9 N	167.1 W		38	172 – 3	31.5 N	127.7 W	
7	52 – 3	53.4 N	164.7 E		39	127 – 2	29.9 N	177.3 W	
8	54 – 3	52.0 N	172.9 E		40	82 – 2	29.6 N	165.0 W	ĺ
9	27 – 3	51.7 N	158.8 E		41	251 – 1	29.4 N	134.9 E	
10	199 – 3	51.7 N	135.6 W		42	91 – 3	28.6 N	139.2 W	
11	124 – 3	51.3 N	158.8 W		43	236 – 1	28.2 N	125.9 E	
12	164 – 3	50.9 N	145.6 W		44	267 – 1	27.9 N	150.7 E	
13	80 – 3	50.3 N	171.3 W		45	44 – 3	27. 8 N	145.6 W	
14	31 – 3	49.3 N	174.1 E		46	185 – 2	26.1 N	170.8 E	
15	216 – 3	49.0 N	128.4 W		47	120 – 4	25.0 N	119.4 W	
16	47 – 2	47.1 N	161.2 E		48	55 – 2	23.5 N	151.8 W	
17	96 – 7	45.8 N	139.3 E		49	209 – 1	22.6 N	128.0 E	
18	147 – 3	45.6 N	144.2 W		50	122 – 2	21.7 N	162.7 W	
19	9 – 3	44.3 N	177.7 W		51	181 – 2	20.5 N	177.1 W	
20	106 – 3	44.2 N	152.7 W		52	53 4	19.2 N	127.8 W	
21	202 – 3	43.7 N	128.7 W		53	175 – 1	18.5 N	120.7 E	
22	36 – 3	42.8 N	167.5 W		54	231 – 2	18.2 N	168.8 E	
23	67 2	42.4 N	172.1 E		55	197 – 1	17.6 N	138.5 E	
24	168 – 3	41.0 N	134.9 W		56	81 – 4	17.6 N	111.5 W	ļ
25	156 – 7	40.2 N	131.2 E		57	200 – 1	14.9 N	147.9 E	
26	309 1	39.5 N	153.8 E		58	160 – 1	14.5 N	127.7 E	
27	188 3	36.2 N	127.4 W		59	158 – 2	14.0 N	160.6 W	
28	205 – 3	36.1 N	123.8 W		60	117 — 1	12.2 N	112.6 E	ĺ
29	62 – 2	35.9 N	171.0 W		61	203 – 1	12.0 N	156.7 E	
30	109 – 2 40 – 3	35.7 N	176.1 E		62	27 – 1	4.1 N	106.7 E	
31	40 – 3 110 – 3	35.6 N 35.4 N	155.2 W 142.0 W		63	57 – 1	2.1 N	123.6 E	
_3Z	110 - 3	35.4 11	142.U W						J

The values in these tables are percent frequencies rounded to the nearest whole percent. Values less than 0.5% but greater than 0% are depicted by a '+'.

The left side of each contingency table has a percentage scale for the bar graphs associated with the categories indicated along the bottom of the table. The height of the bar graphs was determined by adding the values within each column. Similarly, the percent frequencies in the column denoted by a 'T' (total) obtained by summing the percent frequencies across each row. Rounding may cause minor differences between printed totals and total cell counts. By adding down or up the 'T' column or across the bar graphs at the bottom of the table, it is possible to obtain the cumulative percent frequency of a parameter below or above some specified threshold value.

In the following four contingency tables: wind direction and speed, wave height and wind speed, wave height and wave slope, and wave height and directionality the mean value of one of the two parameters associated with each contingency table is displayed just above the upper left corner. The number of hindcasts that was available for all seven tables is also shown at the top of each table. When SOWM hindcast data were not retained due to insufficient wave energy, all parameters were assumed to be zero including the wind speed and direction. speeds were rounded to the nearest whole knot before tabulating the frequency statistics. Directions are those from which the wind or wave is coming. Detailed instructions describing how to read each of the various types of contingency tables are contained in the 'Legends. Tables'. Some potential uses for the contingency tables are demonstrated in Appendix D.

### DURATION AND INTERVAL TABLES

Duration and Interval Tables were prepared for:

- (1) Wind speed;
- (2) Significant wave height;
- (3) Wave slope parameter.

The tables contain objective compilations for 63 grid points on a seasonal basis, and also without regard to season (All Data). Since grid points may be representative of relatively small geographical areas surrounding the points, interpolation may be necessary if data are required for areas between grid points.

Episodes of durations (continuous hours or days) of events and episodes of intervals (continuous hours or days) between events were tallied for various thresholds. These tables give an indication of how long an episode is likely to last once it has begun. convenience, the time an episode persisted above a given threshold is arbitrarily referred to as a "duration" of the event. The times in between episodes have been termed "intervals." have been summarized on a seasonal basis as opposed to monthly summaries. This was deemed most appropriate because even with 12.5 years of hindcast data the embedded missing data makes the sample too small to provide representative durations and intervals for long episodes of wind and wave conditions. The winter season consisted of months January through March, spring - April through June, summer - July through September, and autumn **October** through December, (World Meteorological Organization, 1981). Additional information on the construction and use of the duration and interval tables, including examples of their applications, is included in Appendix E and in the 'Legends for Tables.'

### III. COMPARISON OF THE SOWM CLIMATOLOGY WITH OTHER WAVE CLIMATOLOGIES

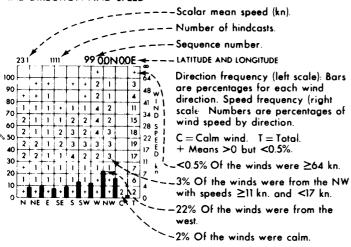
Undoubtedly, the SOWM hindcast climatology as presented in this atlas, varies in its strengths and weaknesses from location location and even from parameter to parameter. In the absence of a substantial quantity of measured wave spectra across the North Pacific Ocean, a strict verification of hindcast climatology is not possible. Nonetheless, some cogent information can be derived regarding the representativeness of the SOWM climatology via comparisons with other wind and wave climatologies. Appendix F contains some comparisons of the SOWM climatology with wave climatologies derived from other sources.

Users of this atlas are cautioned that the validity of the winds and waves near the equator (south of 10° to 15° N) is questionable. This is due to a combination of an inadequate wind field in these areas, and the artificial treatment in the hindcast model of the South Pacific Ocean as land. More details are given in Appendix A and B.

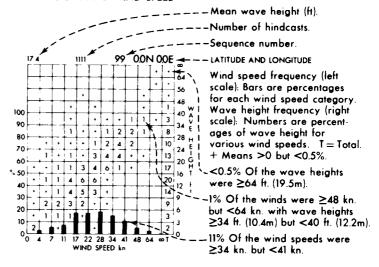
These comparisons indicate that SOME disagreements exist between data sources. user should be aware of these differences when making decisions based on the North Pacific SOWM Atlas or other wave climatologies. this atlas should prove to be a highly useful product especially when used in conjunction with other wave climatologies. It provides extensive wave data on a basin wide scale, including details which cannot be inferred from the only other basin wide data set available, the 1977 U. S. Navy North Pacific Marine Climatic Atlas. User feedback concerning the North Pacific SOWM atlas data accuracy, utility, or format is solicited. Please address your comments to the Officer in Charge; Naval Oceanography Command Detachment; Federal Building, Asheville, 28801-2696.

### LEGENDS FOR TABLES

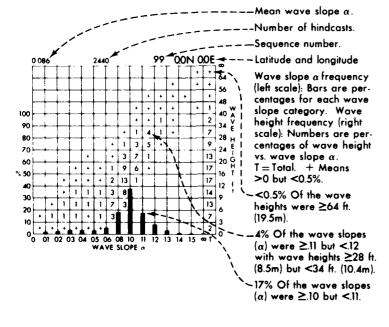




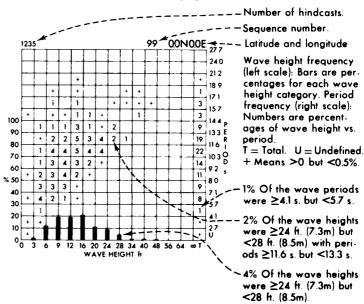
### WAVE HEIGHT AND WIND SPEED



### WAVE HEIGHT AND WAVE SLOPE $\alpha$



### WAVE HEIGHT AND MODAL WAVE PERIOD



feet 0 36 112 20 28 34 40 48 56 64 meters 0.1837 6.1 8.5 12.2 14.6 17.1 19.5 0.9 2.7 4.9 7.3 10.4

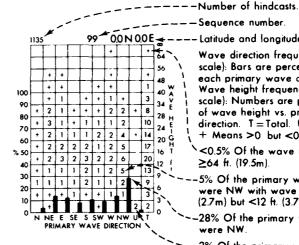
### LEGENDS FOR TABLES

### WAVE HEIGHT AND DIRECTIONALITY

DIRECTIONALITY

--- Mean directionality Number of hindcasts. Sequence number Latitude and longitude 00 N 00E Directionality frequency (left scale): Bars are percentages for each directionality category. Wave height frequency (right scale): Numbers are percentages of directionality 1 2 3 1 values vs. wave height. T = Total. + Means > 01 1 3 5 2 + 13 but <0.5%. + 1 1 2 4 5 3 + 17 1 1 1 2 4 5 3 + 17 <0.5% Of the wave heights were ≥64 ft. (19.5m). 1 1 1 2 3 3 2 1 14 1 2 1 1 2 2 2 1 1 1 1 1 1 1% Of the directionality values were ≥.95 but ≤1.00 with wave heights ≥9 ft. (2.7m) but <12 ft.

WAVE HEIGHT AND PRIMARY WAVE DIRECTION



Latitude and longitude Wave direction frequency (left scale): Bars are percentages for each primary wave direction. Wave height frequency (right scale): Numbers are percentages of wave height vs. primary wave direction. T=Total. U=Undefined. + Means >0 but <0.5%.

Sequence number.

<0.5% Of the wave heights were ≥64 ft. (19.5m).

5% Of the primary wave directions were NW with wave heights ≥9 ft. (2.7m) but <12 ft. (3.7m).

-28% Of the primary wave directions were NW.

2% Of the primary wave directions were undefined with wave heights ≥0 ft. (0m) but <3 ft. (0.9m).

### PRIMARY WAVE DIRECTION AND WIND DIRECTION

(3.7m) and 2% of the direc-

28% Of the directionality values were ≥.85 but <.90.

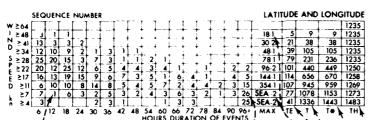
tionality values were ≥.90 but

. \_ \_ \_ Number of hindcasts. Sequence number. **1**00N00E Latitude and longitude + 2 10 N Wave direction frequency (left scale): Bars are percentages for each primary wave direction. + 2 4 1 + 1 + 8 SE Wind direction frequency (right scale): Numbers are percent-+ + 3 4 2 2 ages wind direction vs. primary + + + 3 9 9 wave direction. U = Undefined. C = Calm wind. T = Total. + Means >0 but <0.5% 16% Of the winds were NW. 27% Of the primary wave directions were NW. 2% Of the primary wave directions were undefined with calm winds. 9% Of the primary wave directions were NW with W winds.

Feet 0 3 6 112 120 128 34 40 48 56 64 meters 0.9 2.7 4.9 7.3 10.4

### LEGENDS FOR TABLES

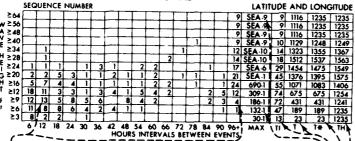
### WIND SPEED DURATIONS- SEASONAL



-1 Event with wind speeds ≥7 kn. persisted 12 hours; 26 events persisted ≥96 hours.

Durations for a particular season extend from the time the event begins (or the first day of the season if already in progress), and terminate when the event ends. Events become undefined if missing data is encountered. Durations lasting a season or more are categorized together. Durations may persist into the next season.

### WAVE HEIGHT INTERVALS - SEASONAL

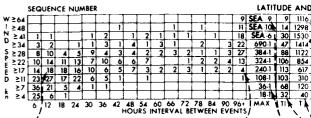


There were 13 12-hour intervals between events of wave heights\
≥9 ft. (2.7m); 4 intervals persisted 96 hours or more.

There were 13 intervals between events of wave heights ≥3 ft. (0.9m) which comprised a total of 23 hindcasts. -----

Intervals for a particular season extend from the time the event ends (or the first day of the season if the event is not in progress), and terminate when the event begins. Intervals become undefined if missing data is encountered. Intervals lasting a season or more are categorized together. Intervals may persist into the next season.

WIND SPEED INTERVALS - SEASONAL

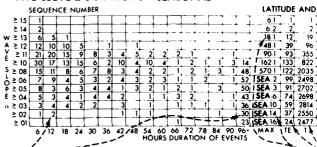


-There were 18 12-hour intervals between events of wind spe ≥17 kn.; 4 intervals persisted 96 hours or more.

The longest interval between events of wind speeds ≥64 km 1 month or more and it occurred 9 times.————————

1,235 Hindcasts were examined, and 40 had wind speeds <4. Intervals for a particular season extend from the time the even (or the first day of the season the event is not in progress), a nate when the event begins. Intervals become undefined if m data is encountered. Intervals lasting a season or more are categorized together. Intervals may persist into the next season.

### WAVE SLOPE α DURATIONS - SEASONAL



~2 Events with α ≥0.02 persisted 12 hours; 30 events persisted ≥96 hours.

24 Events had  $\alpha \ge 0.01$  which comprised a total of 2,477 hinds 2,659 Hindsasts were examined, and 2,641 had  $\alpha \ge 0.01$ . ——

Durations for a particular season extend from the time the event begins (or the first day of the season if already in progress), and the when the event ends. Events become undefined if missing is encountered. Durations lasting a season or more are categories together. Durations may persist into the next season.

ABBREVIATIONS (See text for details)

MAX: Maximum duration or interval, followed by the number of occurrences.

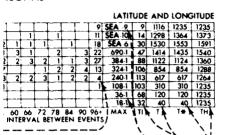
TE or TI: Total number of events or intervals.

T: Total number of hindcasts included in TE or TI

Te: Total number of hindcasts that met the stated criteria.

TH: Total number of hindcasts examined.

### S FOR TABLES



arvals between events of wind speeds ted 96 hours or more.

ren events of wind speeds ≥7 kn. red 1 time. ien events of wind speeds ≥64 kn. was

:curred 9 times.etween events of wind speeds ≥4 kn

irvals may persist into the next season.

of 40 hindcasts. mined, and 40 had wind speeds <4 kn. eason extend from the time the event ends ison the event is not in progress), and termins. Intervals become undefined if missing vals lasting a season or more are

### **SEASONAL**

								LATIT	UDE	AND	LONG	SITUDE
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*	ı.	3	2 <sup>*</sup>	•	•	1	43	ISEA 6	74	2698	2813	2977
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*		_ :	•	•	1	1	30	ISEA 14	37	2550	2696	2733
۲	_	_iT	-	- +	<b>-</b> F		23	ISEA 16	24	2477	2641	2659
٠,	ю.	66	72	28 8	34	ρο <sup>*</sup>	96.	XAM	(TE	TI	1#	TH
υ	RS I	DUR	ATIO	N O	FE	/EN	115	``\.	`	` ` `	,	`\ i

sisted 12 hours; 30 events persisted

20.13 persisted 18 hours and it occurred

≥0.02 persisted for 1 month or more and

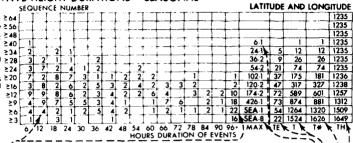
ich comprised a total of 2,477 hindcasts.

mined, and 2,641 had  $\alpha \ge 0.01$ .

season extend from the time the event the season if already in progress), and termi-Events become undefined if missing data lasting a season or more are categorized

persist into the next season.

WAVE HEIGHT DURATIONS - SEASONAL



€4 Events with wave heights ≥6 ft. (1.8m) persisted 12 hours; 22 events persisted ≥96 hours.

The longest event with wave heights ≥3 ft. (0.9m) persisted 1 month or more and it occurred 8 times. -The longest event with wave heights ≥40 ft. (12.2m) persisted for 6 hours and it occurred 1 time. --

22 Events had wave heights ≥3 ft. (0.9m) which comprised a total, of 1.524 hindcasts. — — — — -

1,649 Hindcasts were examined, and 1,626 had wave heights ≥3 ft.

Durations for a particular season extend from the time the event begins (or the first day of the season if already in progress), and terminate when the event ends. Events become undefined if missing data is encountered. Durations lasting a season or more are categorized together. Durations may persist into the next season.

### WAVE SLOPE a INTERVALS - SEASONAL

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	SEQ	UEN	łCE	NUA	ABEF	ŧ											LATIT	UDE	AND	LONG	HUDE
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≥ 14																20	SEA 18	20	2423	2661	2663
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A ≥ 12	1	3	2	1	4			1		1		1	- 1.	_		38	SEA 9	54	2708	2922	3012
y≥n	12	В	Ω	9	5	5	1	4	2	1	2	5		3	4	44	SEA-2	105	2283	2393	2740
E ≥ 10	26	7	15	<b>11</b>	_7	4	8		6	3	_ 5	4	5	5	1	36	_4741	143	1755	1825	2616
5 ≥ 08	23	18	10	13	7	10	. 5	6	4	2	3		2	4	_1	9	348-1	118	762	778	2496
<u>გ</u> ≥ 06	21	18	18	8	4	3	2		2	4		1	2	7		<b>_2</b>	150-1	86	8	355	2450
P ≥ 05	25	419	12	4	4	2	2	2	3	2	2						66-2	77	246	246	2445
E ≥ 04	20	j 18	7	1	6	2	1	. 1	2				Ì				66-1	59	167	167	2443
a ≥ 03	20	8	5	4	3	1		1									48-1	42	96	96	2442
≥ 02	10	i 7	7				7			ļ							42-1	20	39	39	2442
≥ 01	4	1 1				1											36-1	6	12	12	2440
	6	/12	18	24	30	36	42,	48	54	60	66	72	78	84		96+	,WWX	71	RIA	7# €	TH
							_	HC	HPS	INI	FPV	AIS	RFT	WFF	NI	VFN	ける~		· /		` '

There were 18 12-hour intervals between events of wave slopes ≥0.06; 2 intervals persisted 96 hours or more.

The longest interval between events of wave slopes ≥0.10 was 474 hours and it occurred 1 time. The longest interval between events of wave slopes ≥0.15 was 1 month or more and it occurred 18 times.

There were 6 intervals between events of wave slopes ≥0.01 which comprised a total of 12 hindcasts.

2,440 Hindcasts were examined, and 12 had wave slopes <0.01.

Intervals for a particular season extend from the time the event ends (or the first day of the season if the event is not in progress), and terminate when the event begins. Intervals become undefined if missing data is encountered. Intervals lasting a season or more are categorized together. Intervals may persist into the next season.

feet 0 3 6 12 20 28 34 40 48 56 64 meters 0.1837 6.1 8.5 12.2 14.6 17.1 19.5 0.9 2.7 4.9 7.3 10.4

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### WIND SPEED DURATIONS - ENTIRE DATA SET

## 

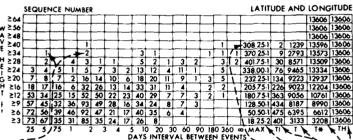
17 Events with wind speeds ≥4 kn. persisted 0.5 day; 57 events persisted >1 day but ≤2 days.

and it occurred 1 time. — — — — — — — — — — — — — — — — 442 Events had wind speeds ≥4 kn. which comprised a total of

13,606 Hindcasts were examined, and 12,640 had wind speeds

Durations extend from the time the event begins and terminate when the event ends. Events become undefined if missing data is encountered.

### WAVE HEIGHT INTERVALS - ENTIRE DATA SET



1 Interval between events of wave heights ≥ 34 ft. (10.4m) persisted 0.5 day; 2 intervals persisted >1 day but ≤ 2 days.

The longest interval between events of wave heights ≥40 ft. was 308.25 days and it occurred 1 time.

There were 401 intervals between events of wave heights ≥3 ft. (0.9m) which comprised a total of 3,133 hindcasts.—

13,606 Hindcasts were examined, and 3,208 had wave heights <3

Intervals extend from the time the event ends and terminate when the event begins. Intervals become undefined if missing data is encountered.

### LEGENDS FOR TABLES

WIND SPEED INTERVALS - ENTIRE DATA SET

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41	5	1	,	7	10	4	4	-1	12	11	5	6	3	_	5		324	00	1 6	8 8	829	13475	1360
34	9	7	5	V 6	22	15	19	4	30	27	9	7	2	1	4		208	50	1 16	7 9	580	13173	1360
28	33	34	20	26	61	43	34	25	46	38	7	7	2	3	1		181	75	1 38	0 10	399	12465	1360
22	68	63	38	55	132	79	44	27	55	32	9	4	5	2			115	75	1 61	3 10	594	11070	1360
17	113	98	103	75	197	96	42	24	67	36	6	2,					50	25	1 85	9 8	875	9001	136
≥11	210	180	150	102	196	62	38	24	20	6	7	1					16	25	1 98	8 5	108	5134	136
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≥ 4 أ	255	106	30	15	35	8		1	1		-					•	Ŧ,6	25	4.	i <sup>T</sup>	963	966	1360

1 Interval between events of wind speeds ≥48 km. persisted 0.5 day; 4 intervals persisted >1 day but ≤2 days.

The langest interval between events of wind speeds ≥7 kn. was 8.75 days and it occurred 2 times.

There were 451 intervals between events of wind speeds ≥4 kn. which comprised a total of 963 hindcasts.

13,606 Hindcasts were examined, and 966 had wind speeds <4 kn Intervals extend from the time the event ends and terminate when the event begins. Intervals become undefined if missing data is encountered.

### WAVE SLOPE a DURATIONS - ENTIRE DATA SET

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w ≥ .13	25	15	15	5	4												ار	50.2	64	142	145	29016
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¥ ≥ 11	120	76	47	46	108	27	3	3									4	25.3	430	1633	1648	29016
ຼ≥ 10	210	139	104	81	183	99	31	15	16							7	. 9	50-1	878	4415	4450	29016
5 ≥ 08	216	128	104	105	265	206	116	69	138	40	4					. 1	23	751	1411	14261	14466	29016
ე≥06	124	104	76	75	241	155	129	99	197	88	18	5				7	35	50 1	1311	20361	20904	29016
P ≥ 05	135	81	70	55	200	138	110	94	192	100	24	12				$\top$	43	00.1	1211	21835	22909	29016
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,				•														`~	_		7	``;

-32 Events with α ≥0.01 persisted .25 day; 19 events persisted >1 day but ≤2 days.

The longest event with  $\alpha \ge 0.13$  persisted 1.50 days and it occurred 2 times.

29,016 Hindcasts were examined, and 28,054 had  $\alpha \ge 0.01$ .

Durations extend from the time the event begins and terminate when the event ends. Events become undefined if missing data is encountered.

ABBREVIATIONS (See text for details)

MAX: Maximum duration or interval, followed by the number of occurrences.

TE or TI: Total number of events or intervals.

T: Total number of hindcasts included in TE or TI.

Te: Total number of hindcasts that met the stated criteria.

TH: Total number of hindcasts examined.

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### **DR TABLES**

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				LATI	TUDE	AND	LONG	SITUDE
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	Ţ.		Ċ	50 25 1	859	8875	9001	13606
				16 25 1	988	5108	5134	13606
		-	·	8752	798	2376	2387	13606
•	•		1	6 25 1	45]	963	966	13606
90	180	360	ω	MAX	11	k, τ k	T# 🕅	THA

peeds ≥48 km. persisted 0.5° ut ≤2 days.

of wind speeds ≥4 kn. was

of wind speeds ≥7 kn. was

vents of wind speeds 03 hindcasts.

nd 966 had wind speeds <4 kn. vent ends and terminate when undefined if missing data is

### DATA SET

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day; 19 events persisted >

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sted 1.50 days and it occurred

rised a total of 20,760

d 28,054 had α ≥0.01. –

vent begins and terminate undefined if missing data is

### WAVE HEIGHT DURATIONS - ENTIRE DATA SET

	SEQUENCE NUMBER LATITUDE AN															AND	LONG	SITUDE					
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≥:	24	15	21	19	10	12	5	L.	l				<u> </u>	<u> </u>	<u> </u>	_	1		2.50-1	82	272	272	13606
	20	23	19	20	19	36	15	5	2						L.			1	4.50-1	139	663	669	13606
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≥	12	62	46	44	26	71	43	29	22	20	4				Γ		1	I	15.75.1	367	2833	2845	13606
2	9	46	40	38	33	103	65	30	19	53	10				Ĺ.,		1	1	20.50-1	438	4603	4616	13606
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~33 Events with wave heights ≥3 ft. (0.9m) persisted 0.5 day; 68 events persisted >1 day but ≤2 days.

The longest event with wave heights ≥28 ft. (8.5m) persisted 2 days and occurred 2 times.

The longest event with wave heights  $\geq 24$  ft. (7.3m) persisted 2.5 days and occurred 1 time - - - - -

393 Events had wave heights ≥3 ft. (0.9m) which comprised a total of 10,094 hindcasts.

Durations extend from the time the event begins and terminate when the event ends. Events become undefined if missing data is encountered.

### WAVE SLOPE α INTERVALS - ENTIRE DATA SET

WAVE SECTE & INTERVACES - ENTIRE DATA SET																					
SEQUENCE NUMBER LATITUDE AND LON															LONG	HTUDE					
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V ≥ 11	34	20	15	21	52	40	31	19	54	58	29	22	7	10	_3	- 1	202.25	415	23046	27368	29016
້ ≵ 10	99	62	61	61	114	79	71	48	117	94	28	20	8	4		$\perp L$	127.50	866	22585	24566	29016
S ≥ 08	263	156	124	123	271	143	97	53	104	70	6	1				- 1	47 75	1411	14399	14550	29016
ე ≥ 06	279	188	156	122	269	136	61	34	62	4.							15.00-	1311	8040	8112	29016
ρ ≥ 05	304	227	143	93	244	94	48	25	32	- 1							14.50	1211	6040	6107	29016
E ≥ 04	326	227	148	86	197	63	32	22	10	1							14 50	11112	4577		29016
n ≥ 03	318	173	113	72	151	43	26	6	8								8.50-	910	3347	3353	29016
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				•				٥	AYS	INT	ERV	AL E	SETV	/EEN	ı Ev	ENT	5	`.		`	\ \ \

2 Intervals between events of wave slopes ≥0.13 persisted 0.5 day; 1 interval persisted >1 day but ≤2 days.

The longest interval between events of wave slopes ≥0.15 was 16.25 days and it occurred 1 time.

The longest interval between events of wave slopes ≥0.01 was 5.25 days and it occurred 2 times.

There were 286 intervals between events of wave slopes ≥0.0] which comprised a total of 961 hindcasts.

29,016 Hindcasts were examined, and 962 had wave slopes <0.01.

Intervals extend from the time the event ends and terminate when the event begins. Intervals become undefined if missing data is encountered.

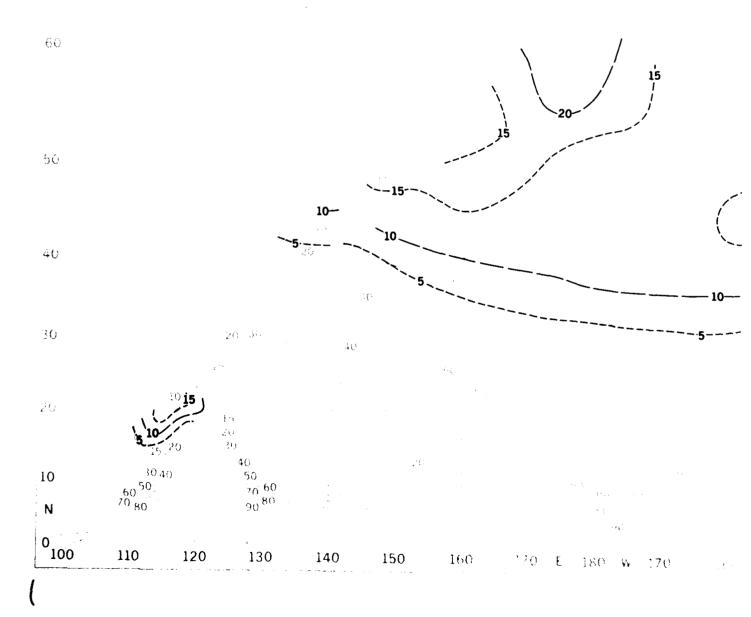
feet 9 16 24 0 3 6 112 20 28 34 40 48 56 64 meters 0 118 3.7 6.1 8.5 12.2 14.6 17.1 19.5 0 9 2.7 4.9 7.3 10.4

D

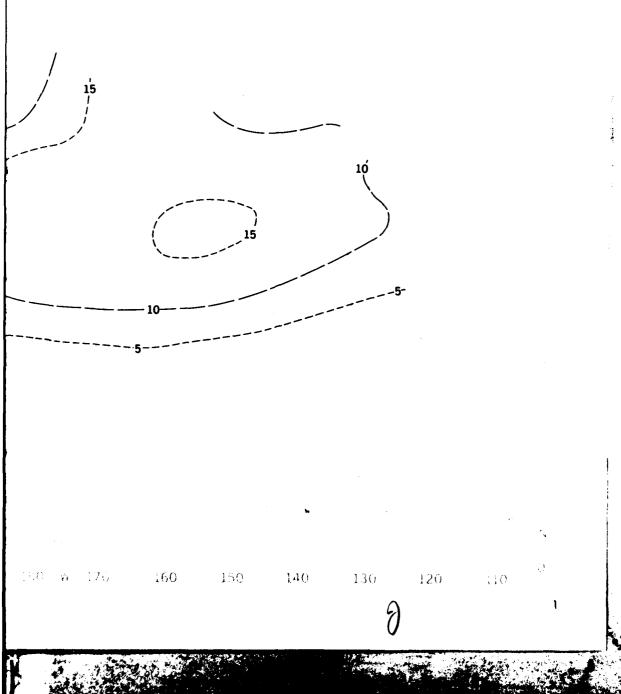
### WIND SPEED (≤10 AND ≥34 KNOTS)

Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots

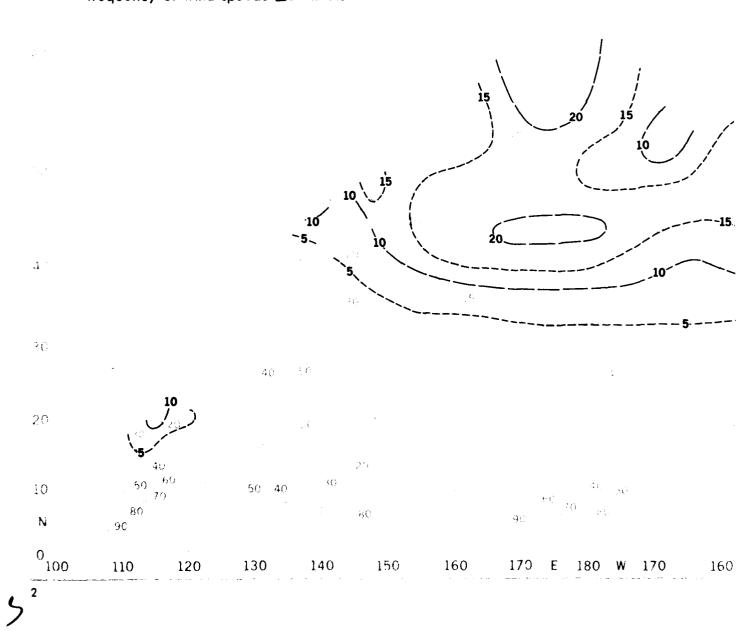


### **JANUARY**

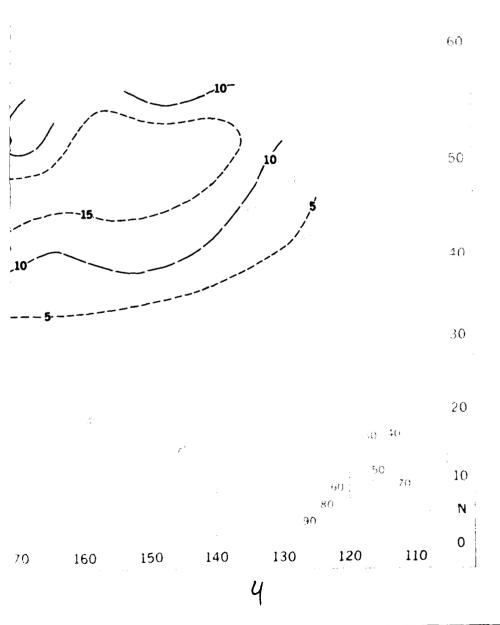


Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots



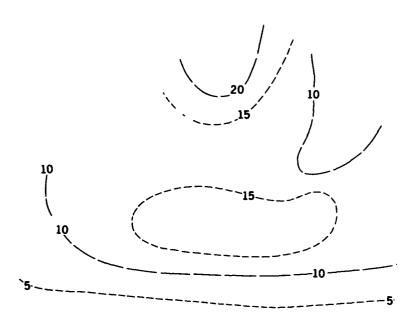
### WIND SPEED (≤10 AND ≥34 KNOTS)



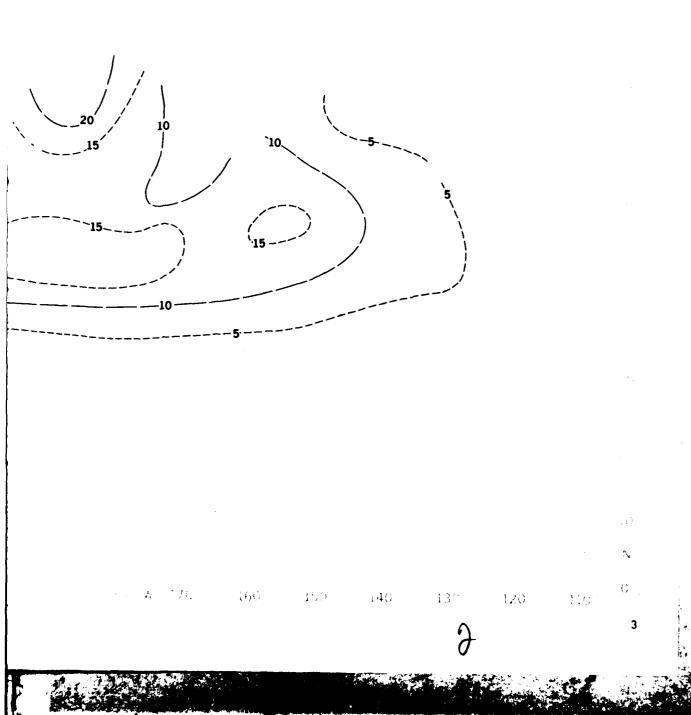
### WIND SPEED (≤10 AND ≥34 KNOTS)

Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots



### MARCH

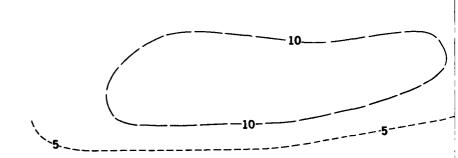


**APRIL** 

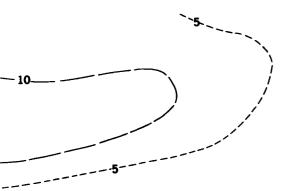
WIND

Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots



WIND SPEED (≤10 AND ≥34 KNOTS)



### WIND SPEED (≤10 AND ≥34 KNOTS)

Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots

MAY

J

JUNE

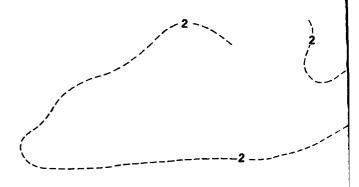
WIND

Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots

130

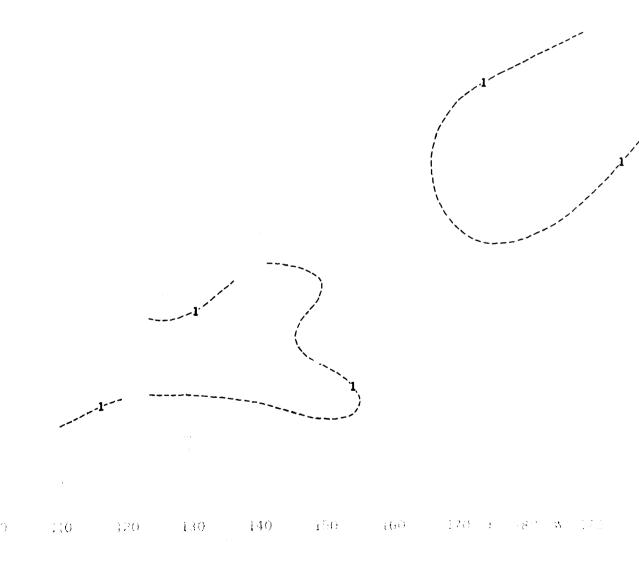
140

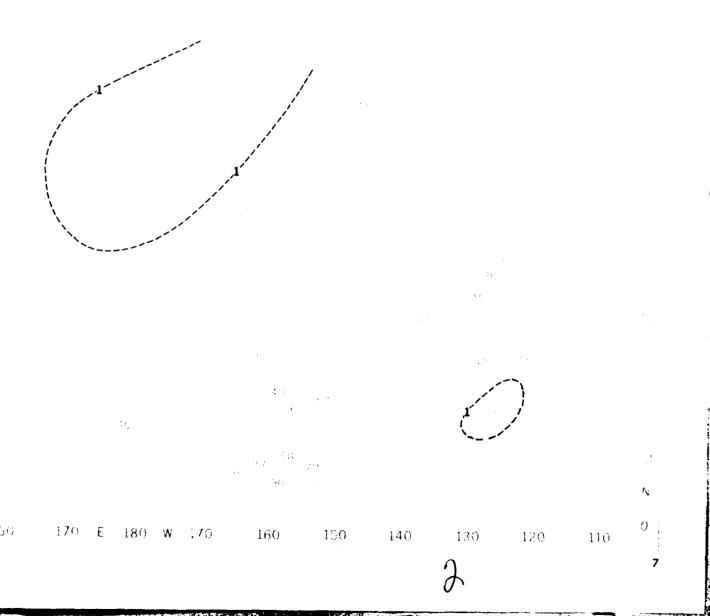


3

Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots



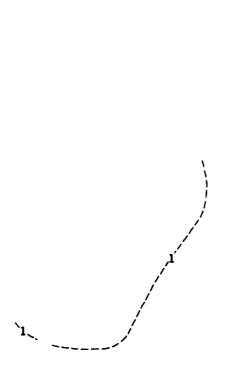


#### **AUGUST**

WIND

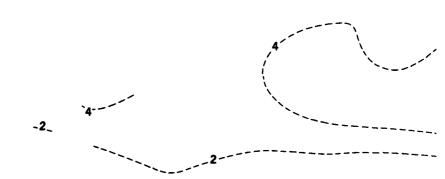
Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

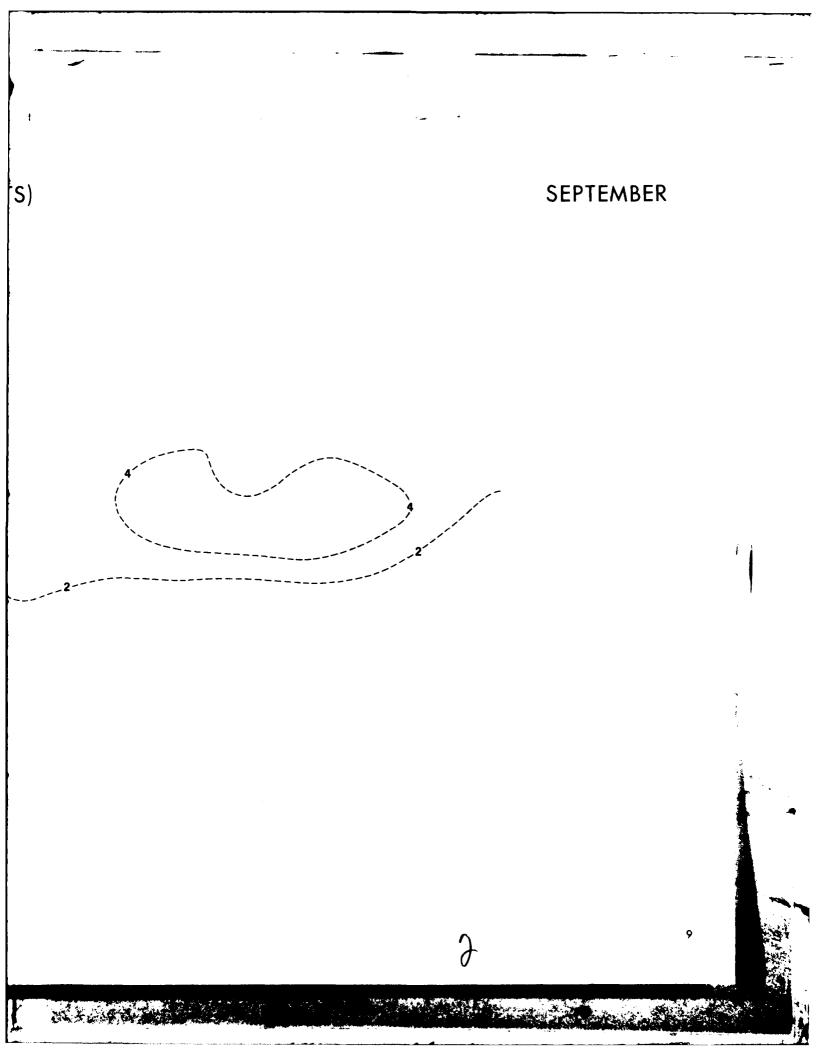
Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots



Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

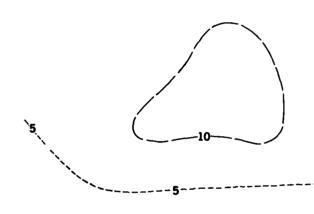
Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots





Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots

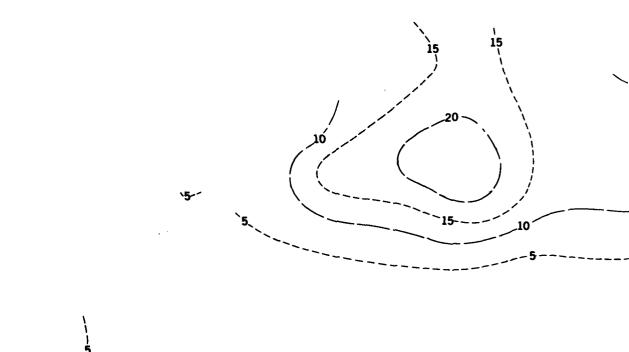


100 110 120 130 440 (50 160 170 E ...of) W 17

Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent

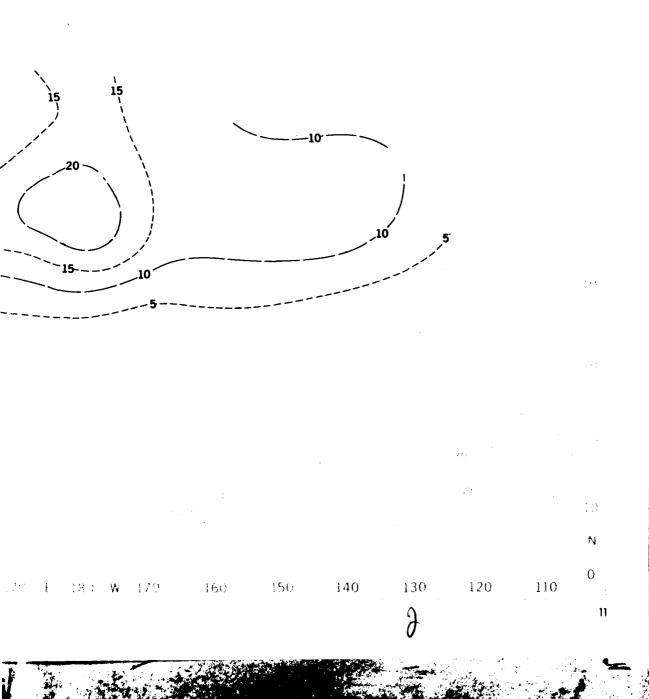
frequency of wind speeds ≥34 knots



00 110

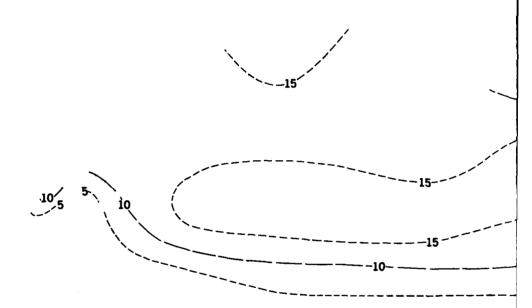
170 E 180 W

## NOVEMBER

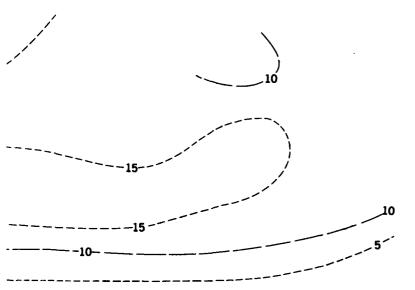


Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots

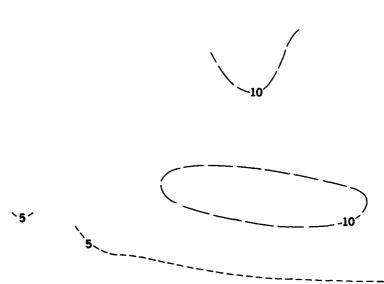


10 15 5



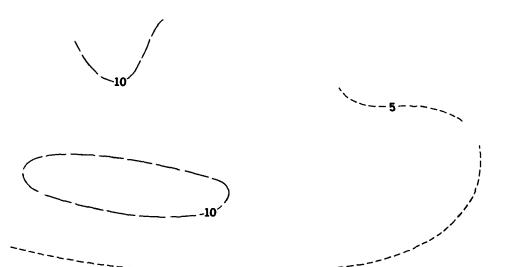
Solid Lines (dotted intermediates) - Percent frequency of wind speeds ≤10 knots

Dashed Lines (short intermediates) - Percent frequency of wind speeds ≥34 knots



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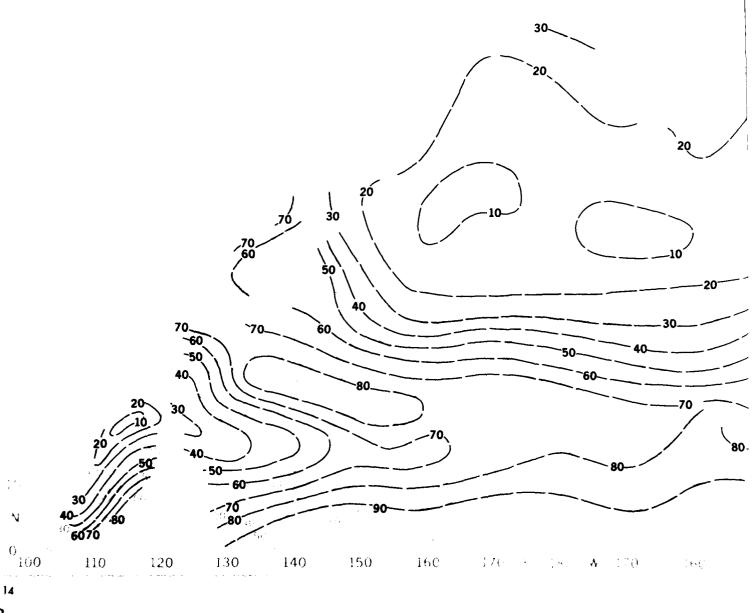
# ANNUAL

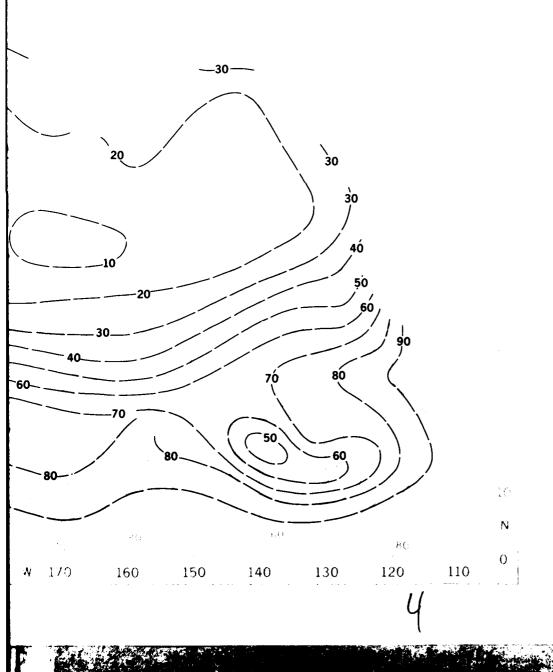


-13

Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

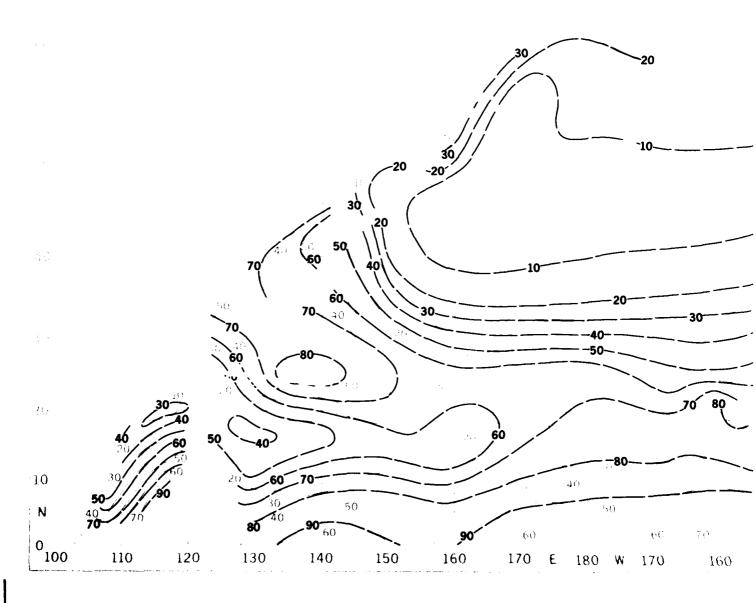
Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)



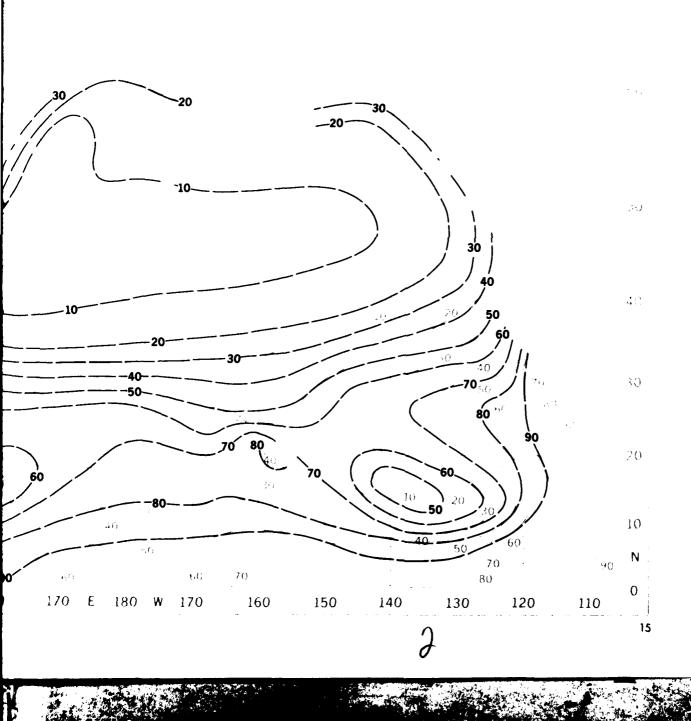


Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)

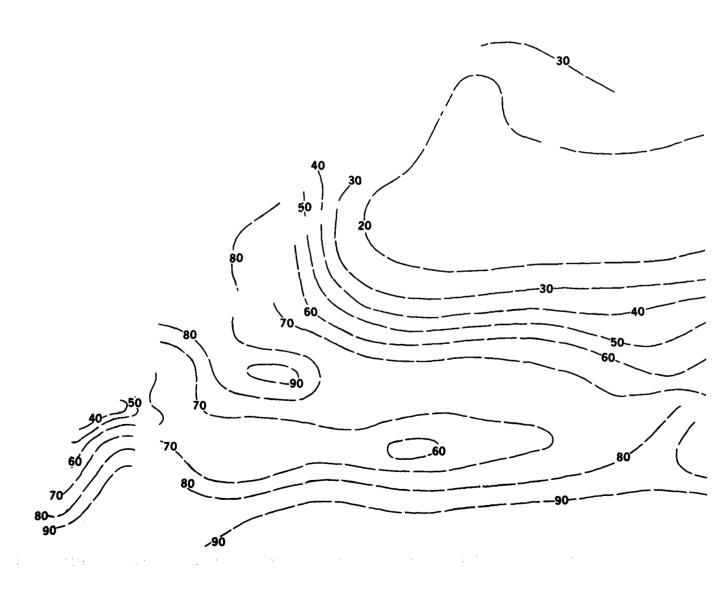


## **FEBRUARY**

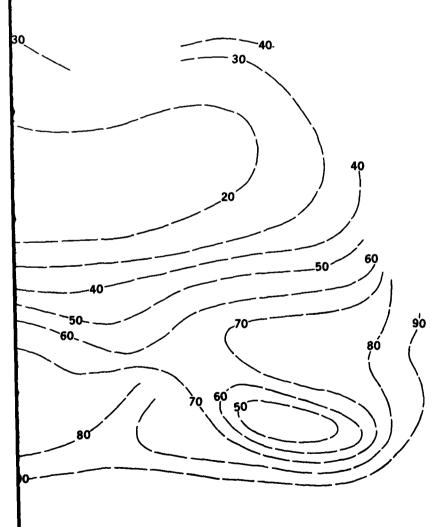


Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)



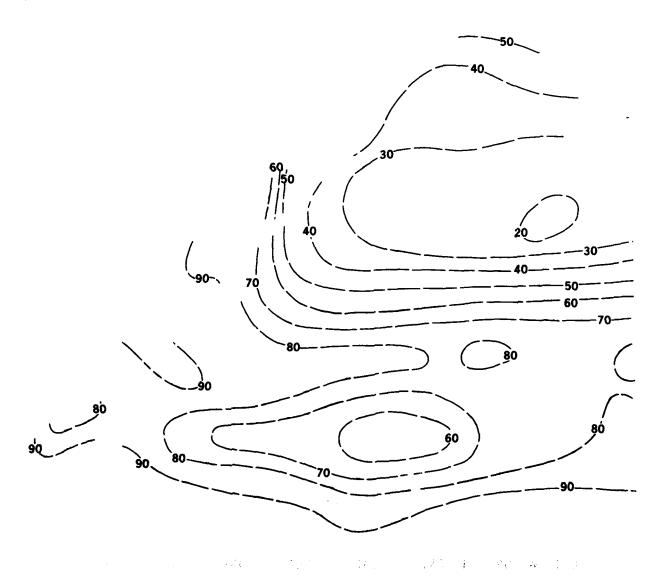
נל "



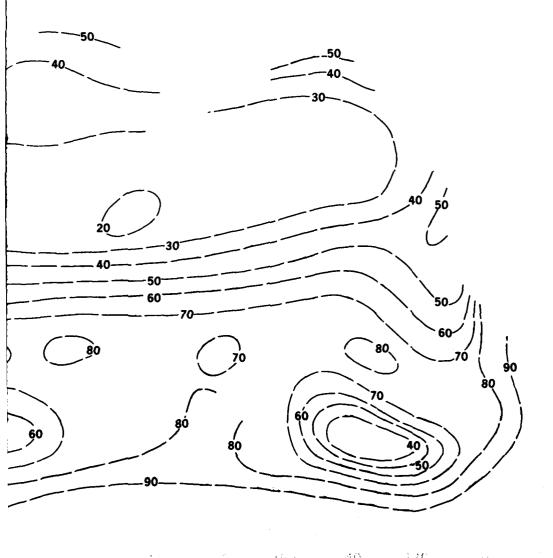
L

Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)



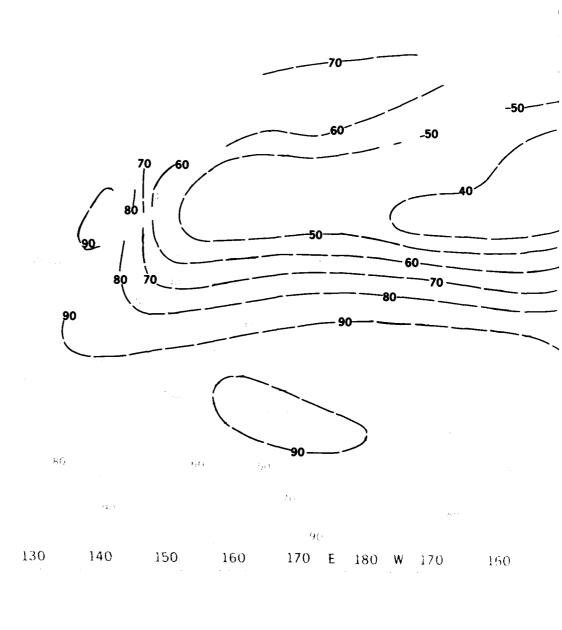
# APRIL



17

Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)



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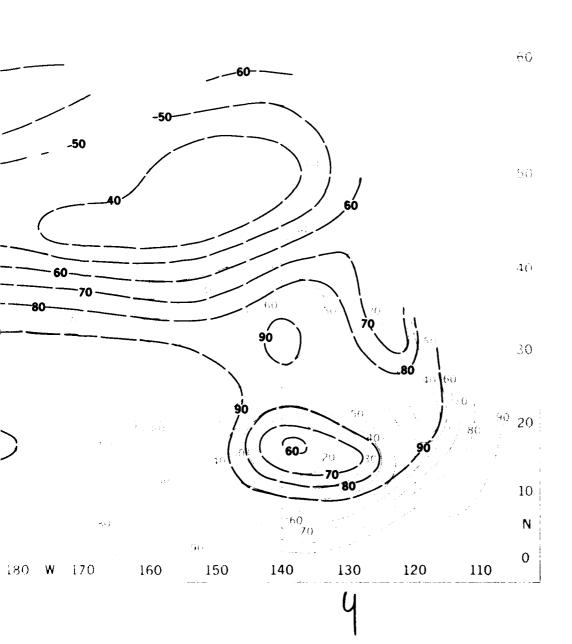
10

N

0

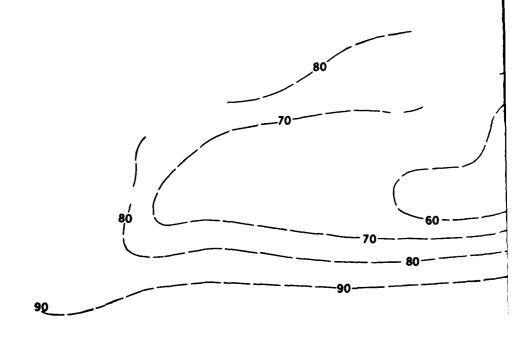
110

120



Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)



10

N

0100

110

120

130

140

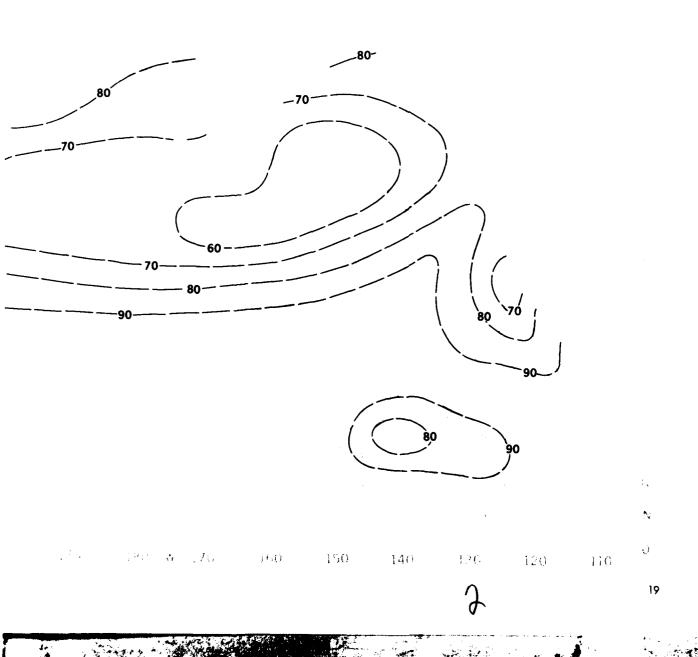
150

160

170 E 180 W

1 tst

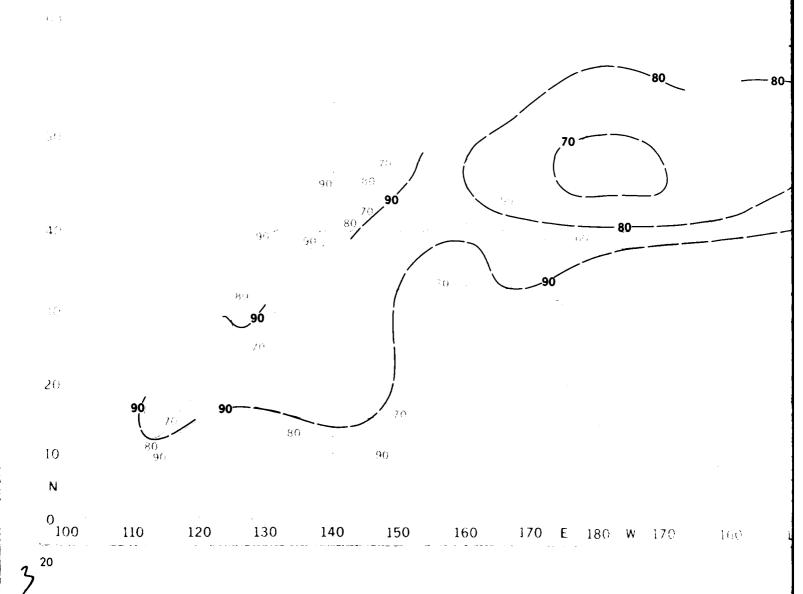
170

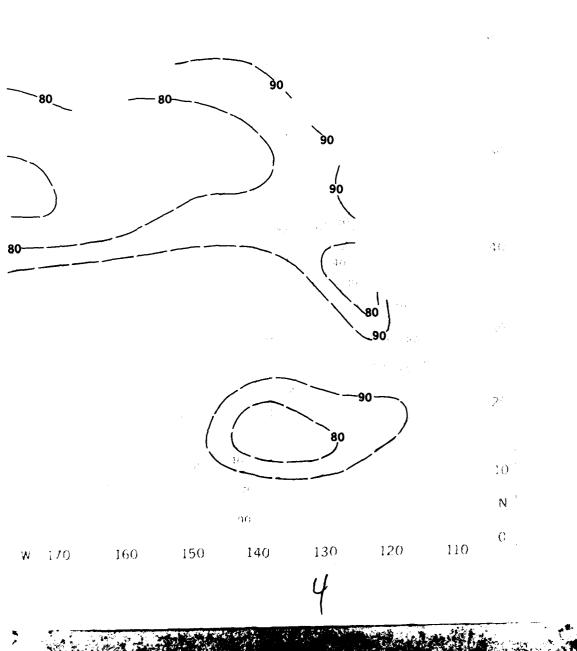


WAV

Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

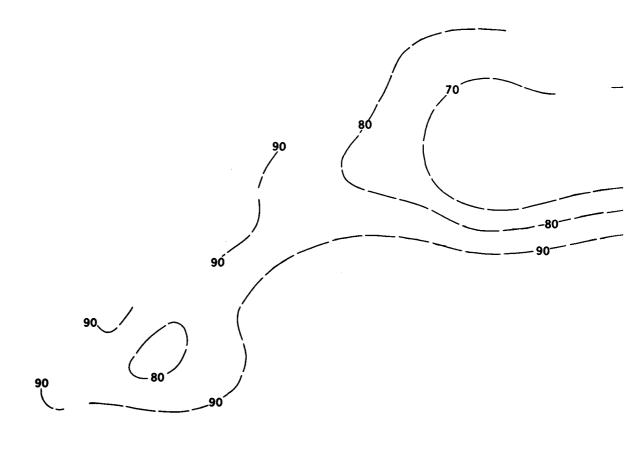
Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)





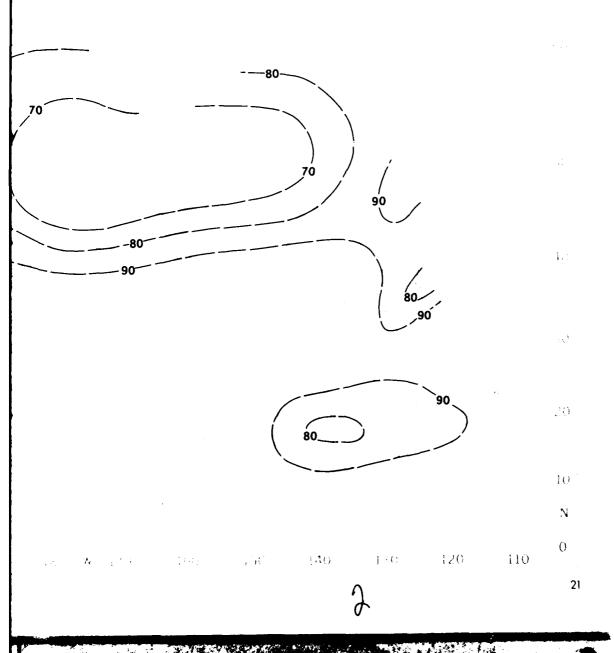
Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)



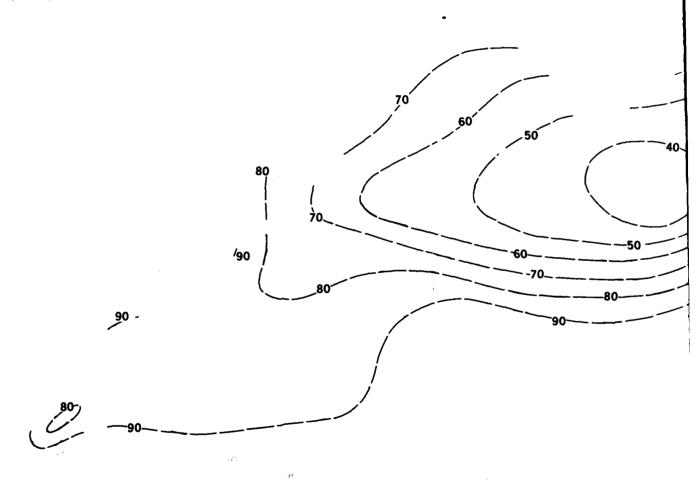
130 - 120 - 130 - 140 - 150 - 160 - 171 **- 1**80 **w** 126

## **AUGUST**



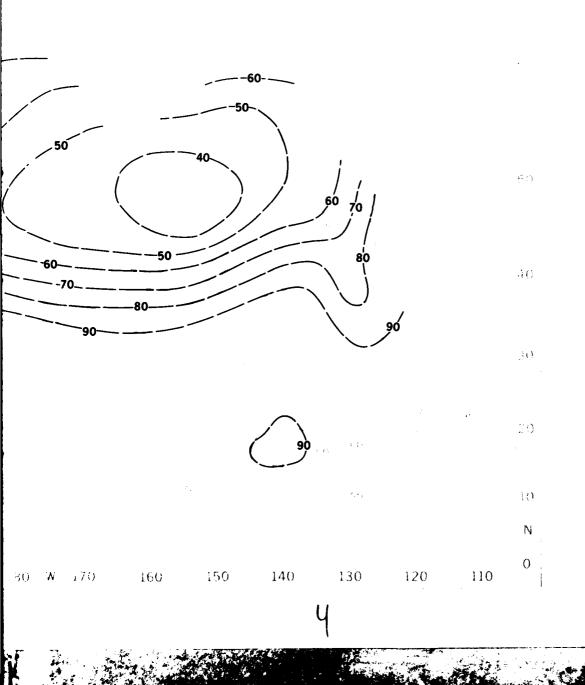
Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)



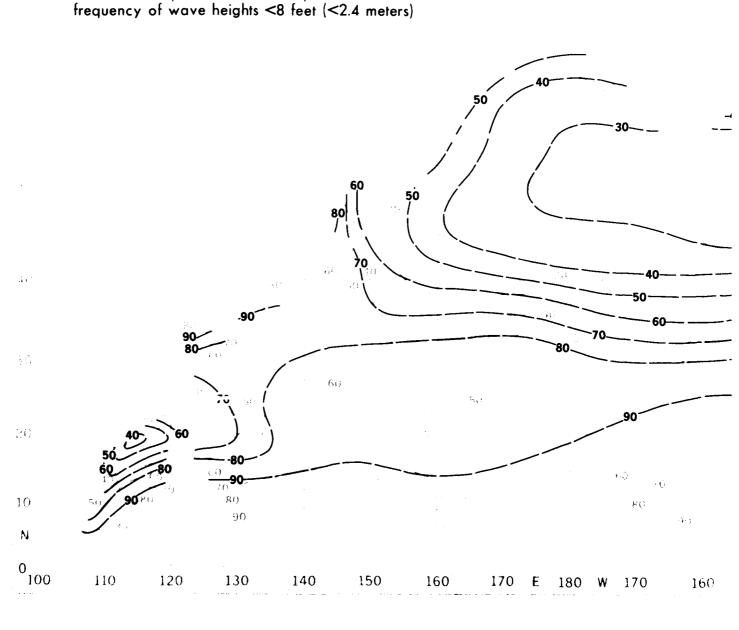
0 100 110 120 130 140 150 160 170 E 180 W 170 160

**ک** 22

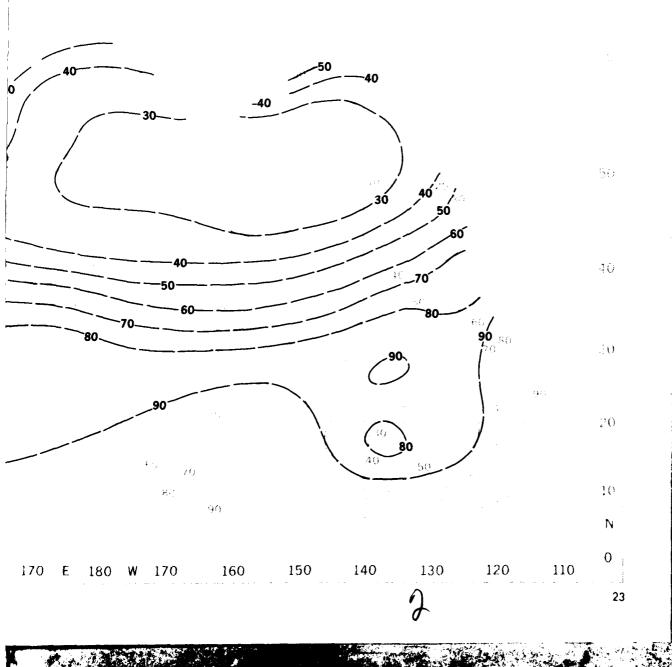


Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent

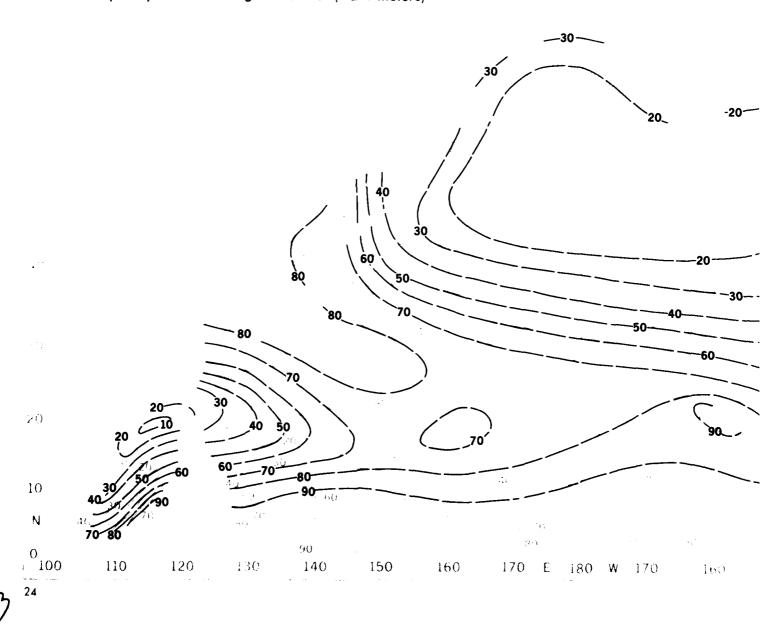


# OCTOBER

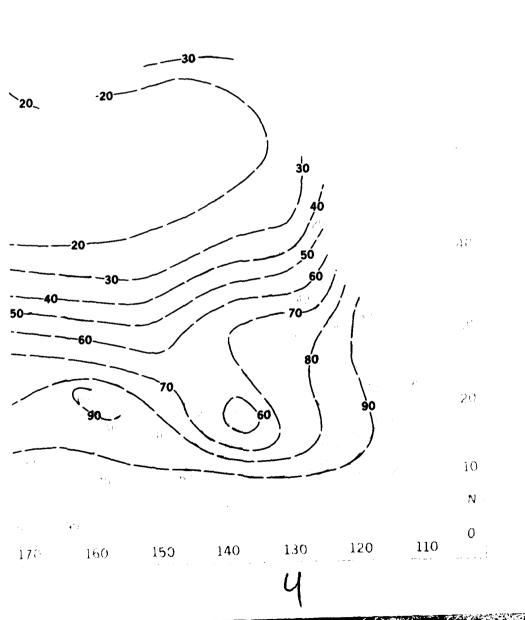


Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)



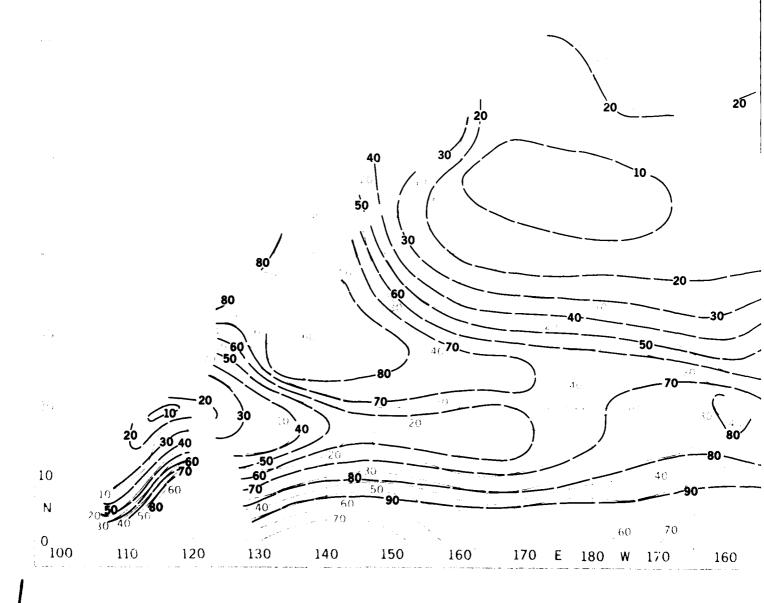
# WAVE HEIGHT (<5 AND <8 FEET)



#### WAVE HEIGHT (<5 AND <8 FEET)

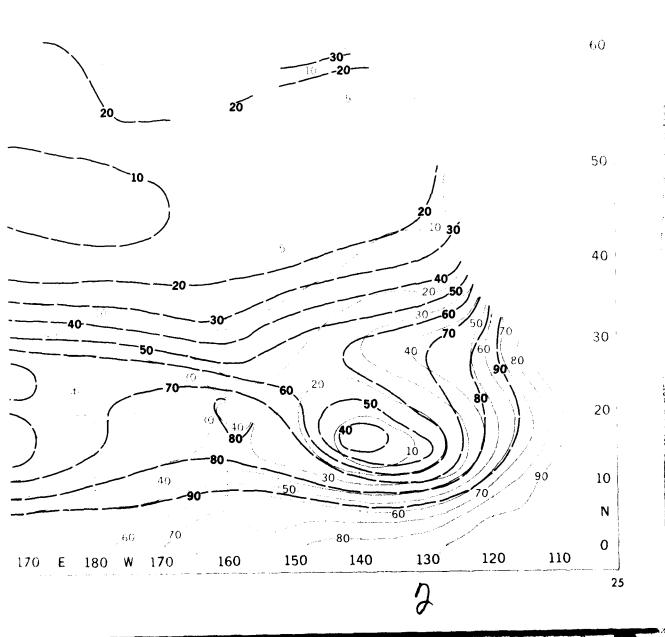
Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)



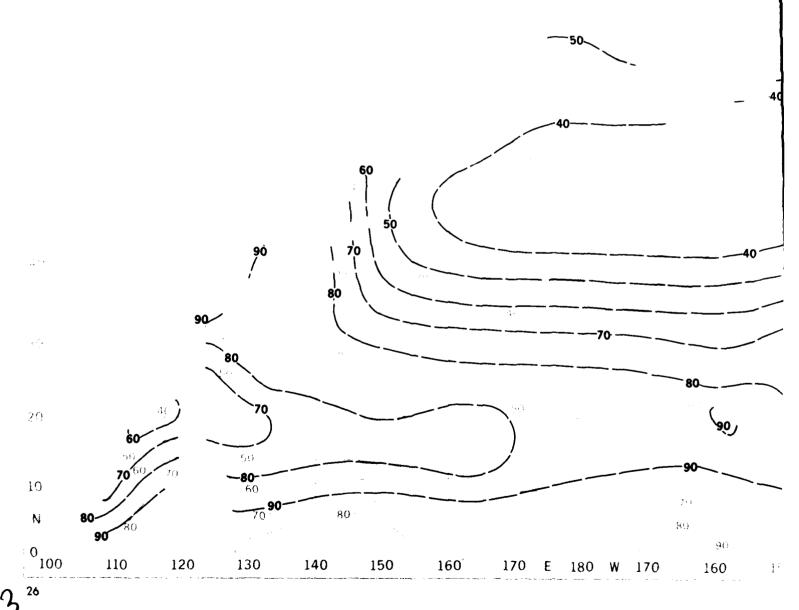
### **DECEMBER**



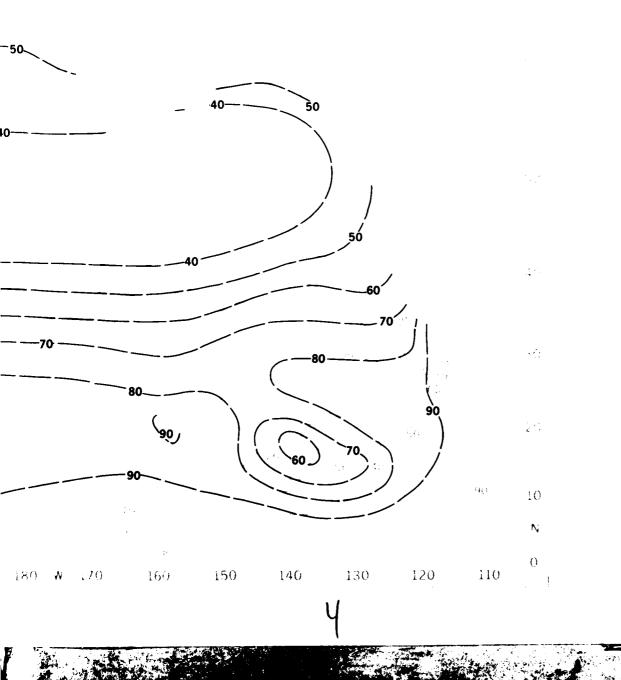


Solid Lines (dotted intermediates) - Percent frequency of wave heights <5 feet (<1.5 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights <8 feet (<2.4 meters)

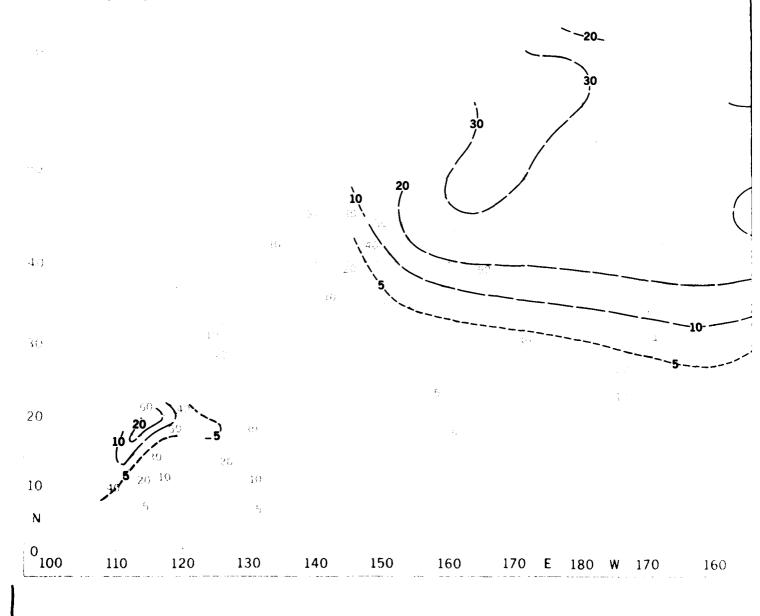


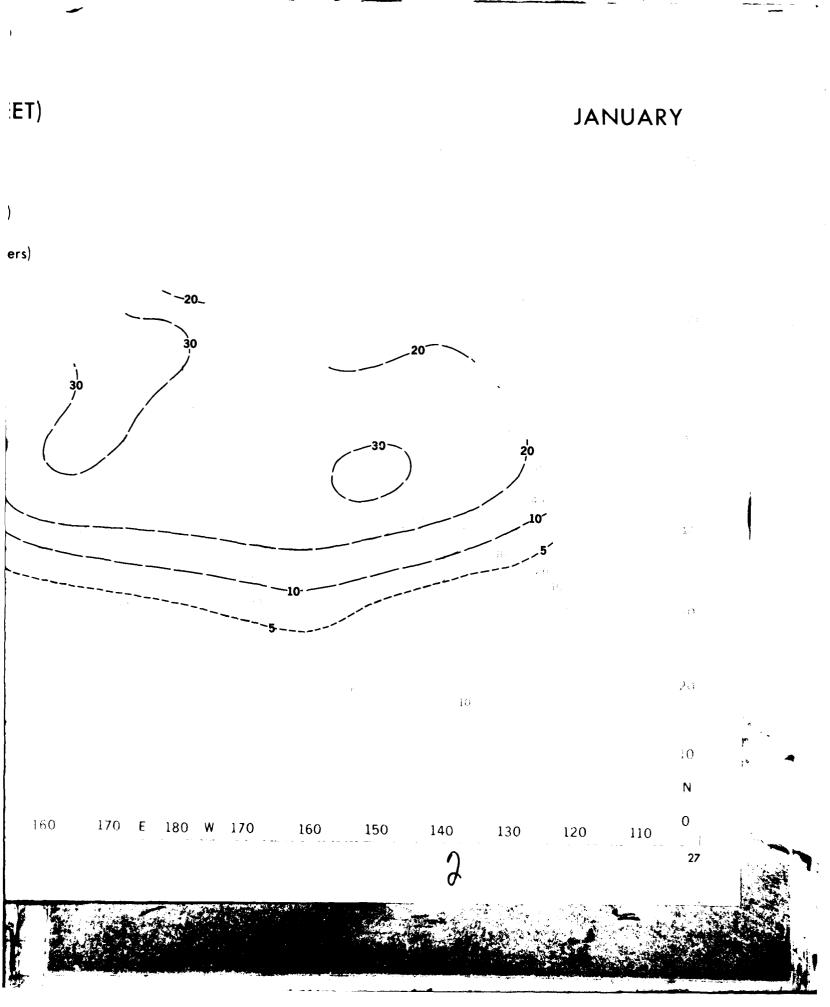
## WAVE HEIGHT (<5 AND <8 FEET)



Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

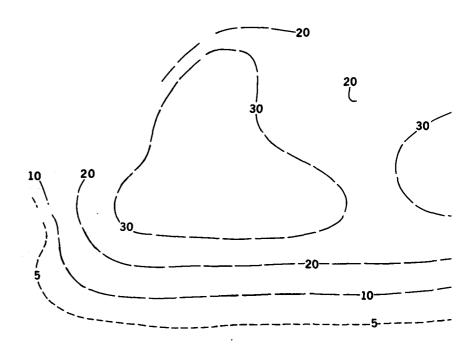
Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)

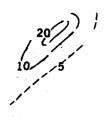




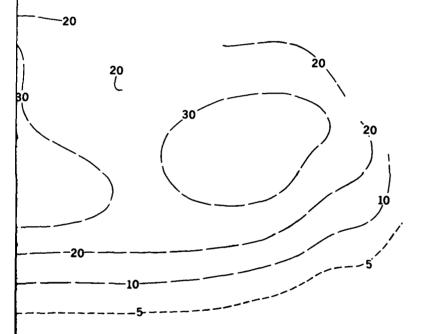
Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)





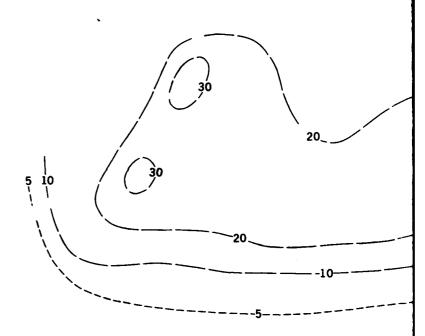
100 110 120 130 140 150 363 170 + 387 5



4

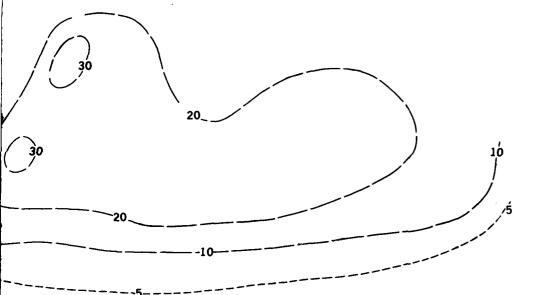
Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)





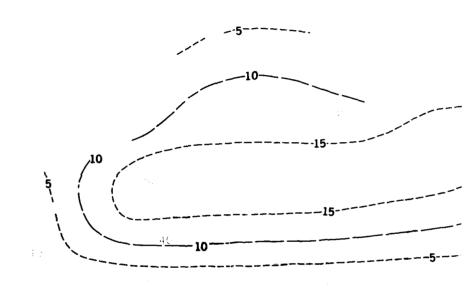
## MARCH



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J

Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters) Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)



100

110

120

130

140

150

160

160

30

 $-m = \mathbf{A} - \pi m = -100$  and -140 -100 -120 -120 -120

30

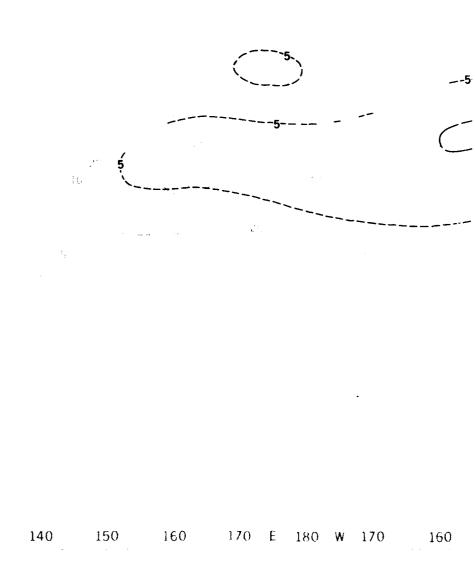
D

180 W 170 160 150 140 130 120 110

Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

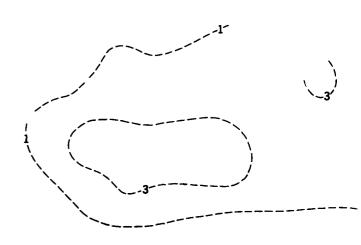
Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)

- N



Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)



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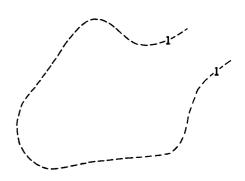
M

:00

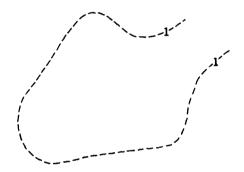
:10

Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)







-0 1 186 W 176 (60 150 140 130 120 14

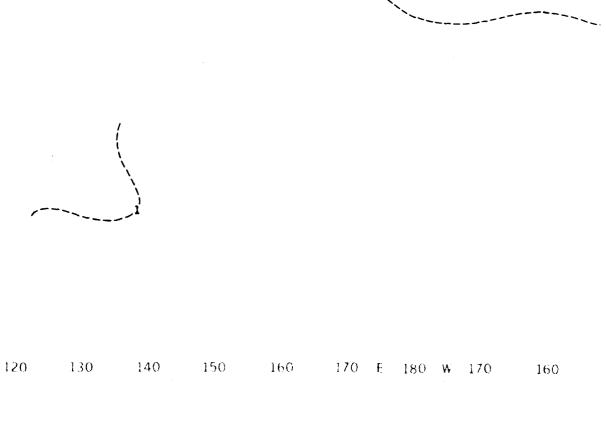
7

33

Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)

177



<sub>3</sub> ر

(i)

N

0100

110

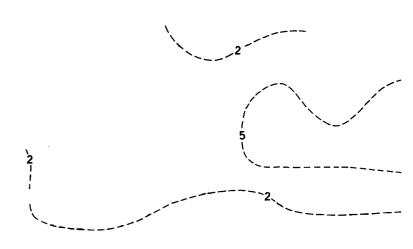
14,

N

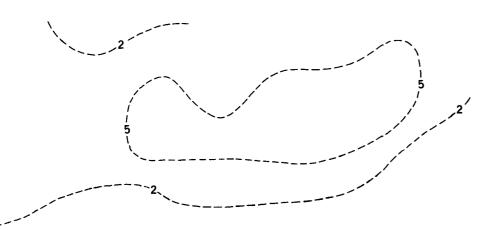
V

Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)



### SEPTEMBER



35

**OCTOBER** 

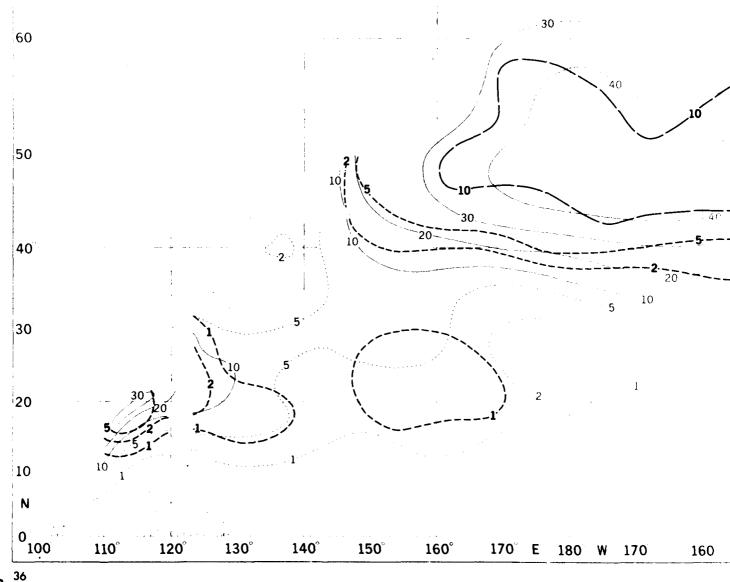
WA\

170 E

180 W

Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)

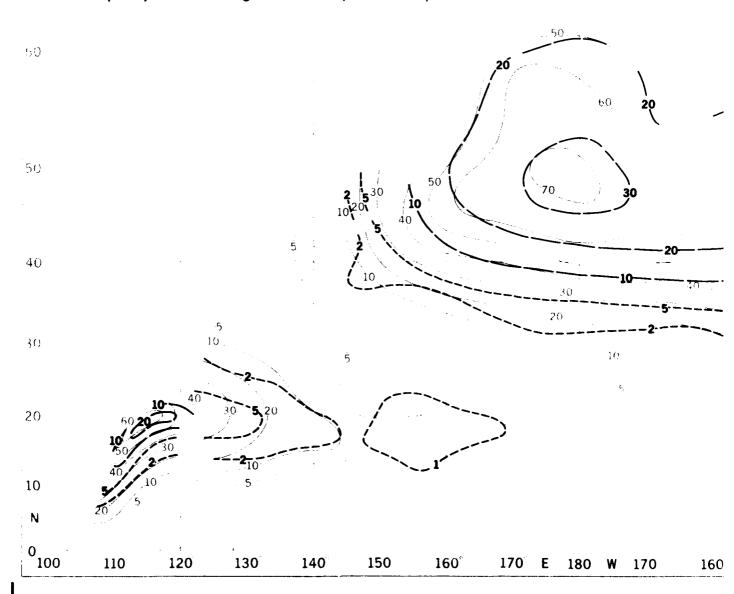


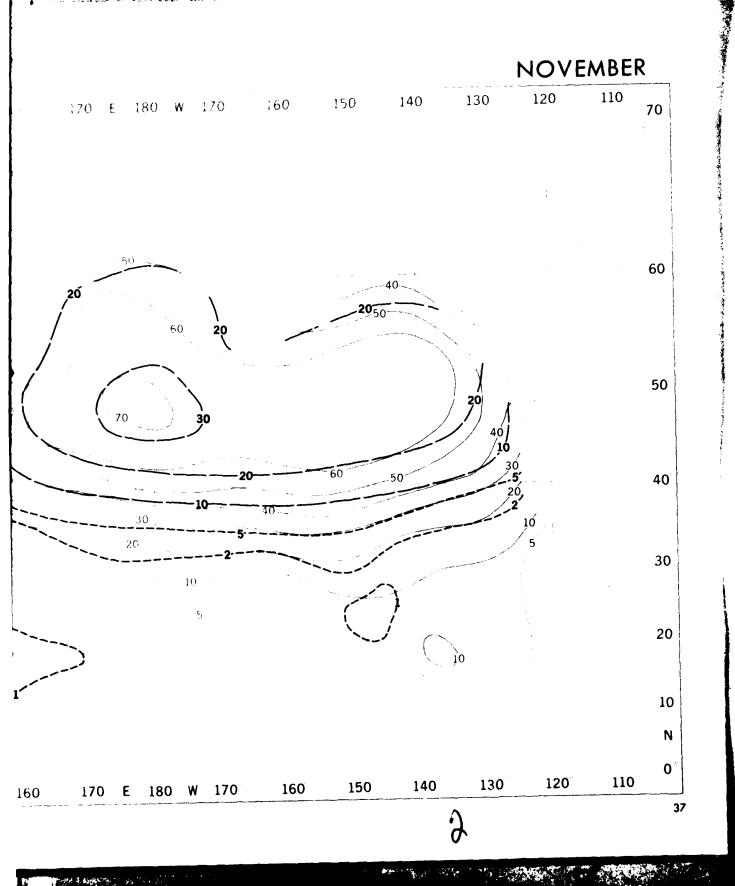
E

16,0

Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)





#### **DECEMBER**

WAV

100 70

110

120

130

140

150

160

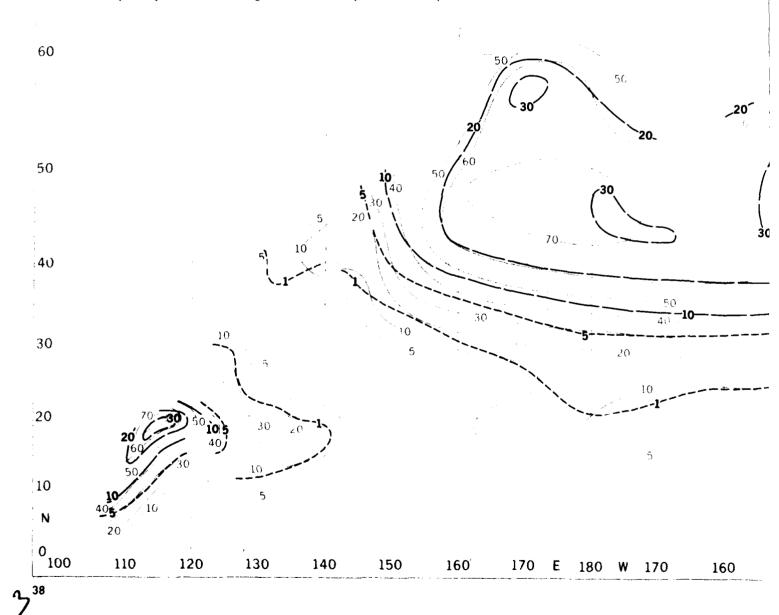
170 E 180 W

(00)

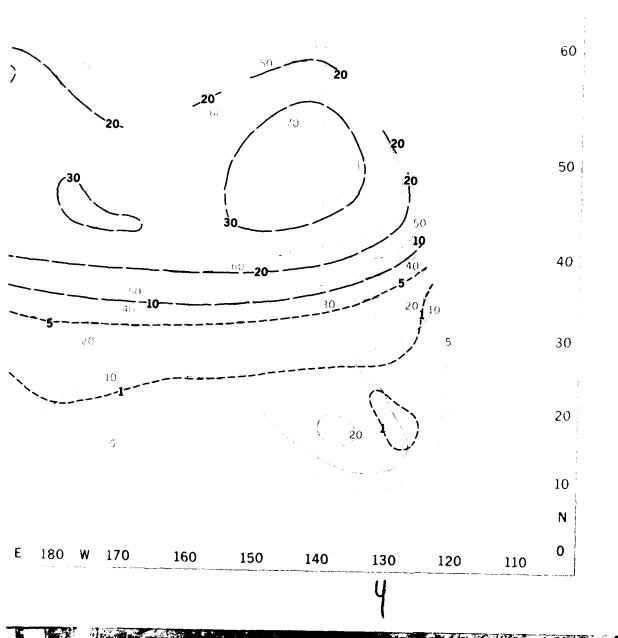
170

Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)



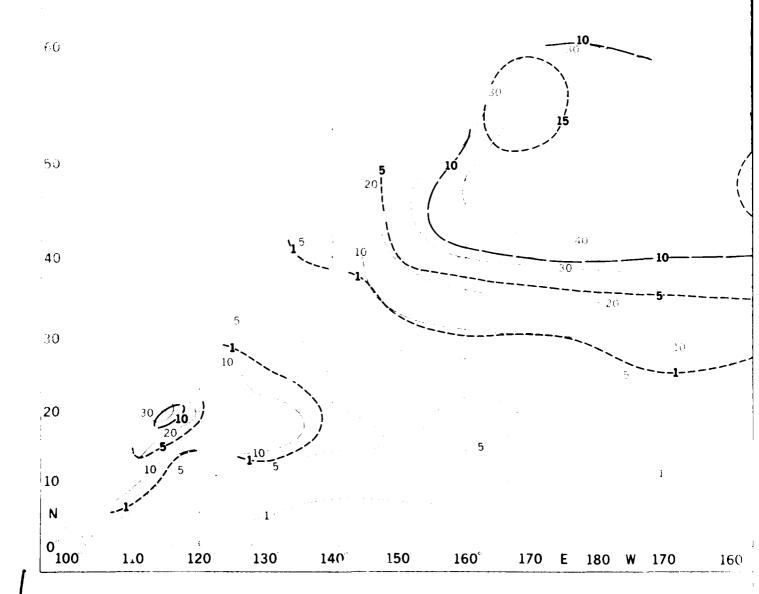
180 W 170 160 150 140 130 120 110



- 100 - 110 - 120 - 130 - 140 - 150 - 160 - 170 E 180 W 170 70

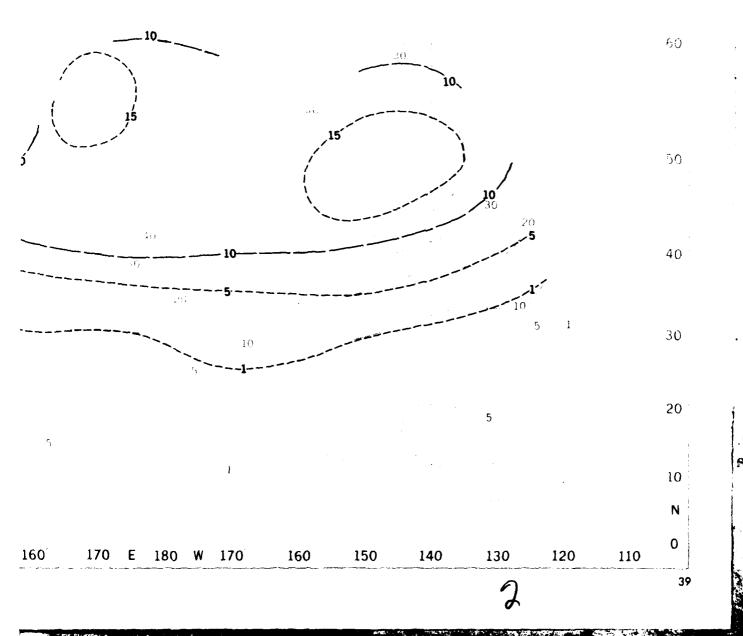
Solid Lines (dotted intermediates) - Percent frequency of wave heights ≥12 feet (≥3.7 meters)

Dashed Lines (short intermediates) - Percent frequency of wave heights ≥20 feet (≥6.1 meters)



ANNUAL

-76 E 130 W 770 160 190 140 130 120 :10 70

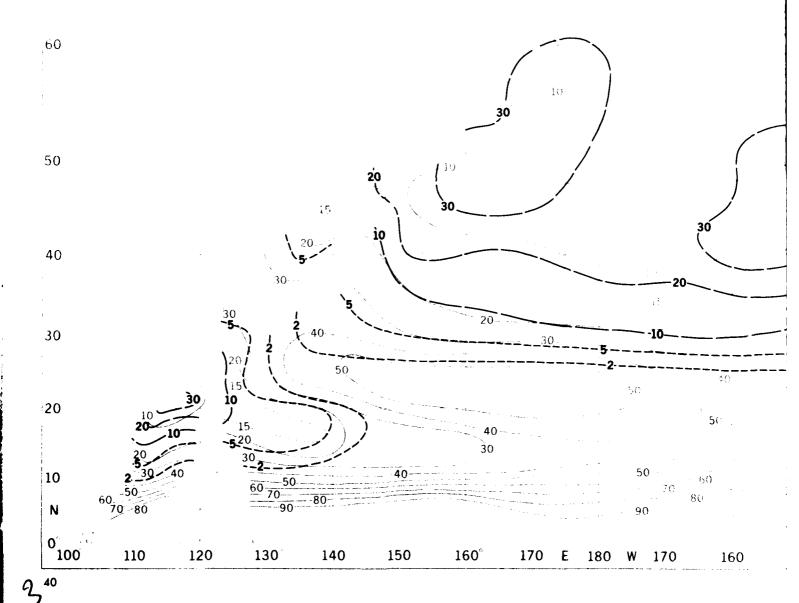


**JANUARY** 

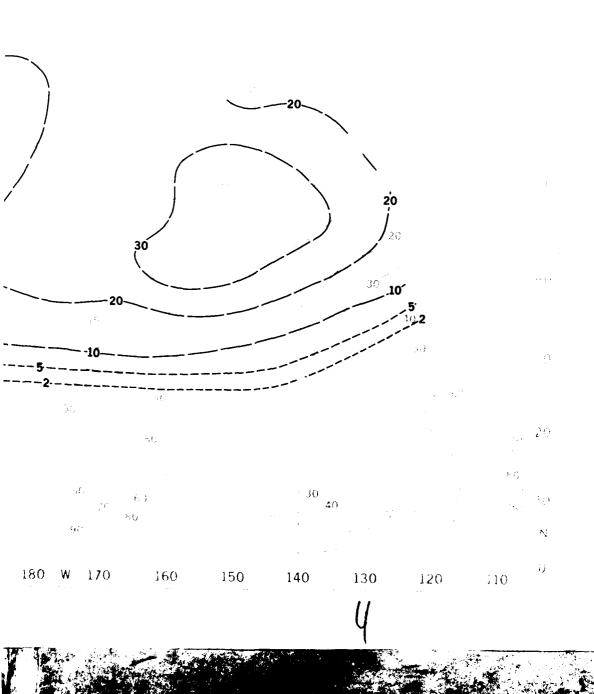
**WAVE** 

100 110 120 130 140 150 160 (70 F 186 A

Solid Lines (dotted intermediates) - Percent frequency of wave slope parameter  $(\alpha) \leq 0.05$  Dashed Lines (short intermediates) - Percent frequency of wave slope parameter  $(\alpha) \geq 0.10$ 



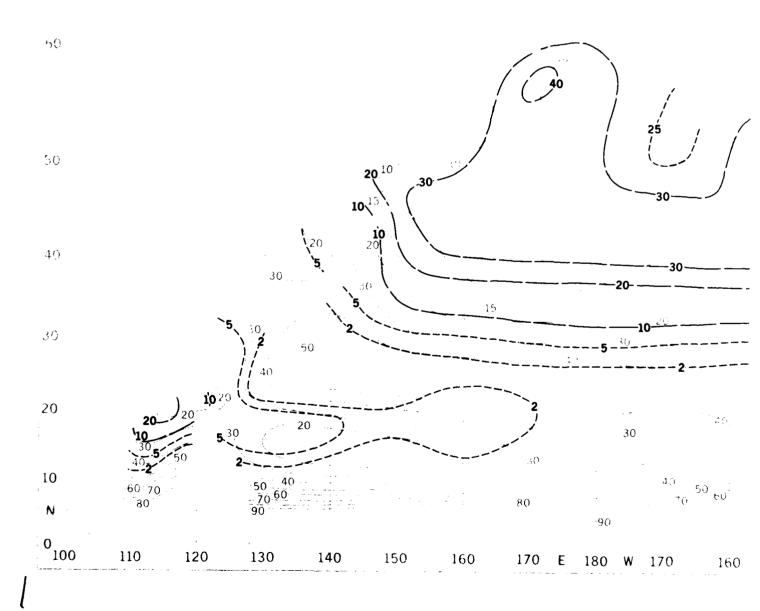
## WAVE SLOPE ( $\alpha$ ) ( $\leq$ 0.05 AND $\geq$ 0.10)



### WAVE SLOPE ( $\alpha$ ) ( $\leq$ 0.05 AND $\geq$ 0.10)

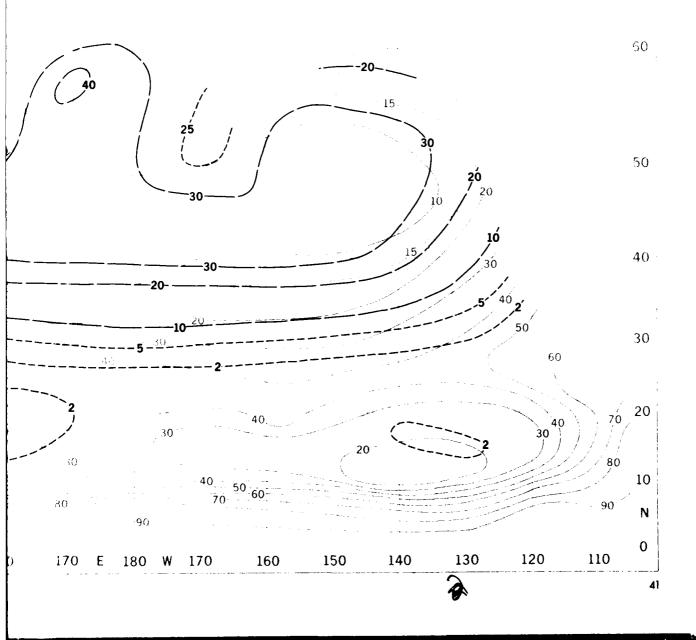
00 110 120 13**0 140 150 160 170 E 18**0 X 170

Solid Lines (dotted intermediates) - Percent frequency of wave slope parameter  $(\alpha) \leq 0.05$  Dashed Lines (short intermediates) - Percent frequency of wave slope parameter  $(\alpha) \geq 0.10$ 



#### FEBRUARY

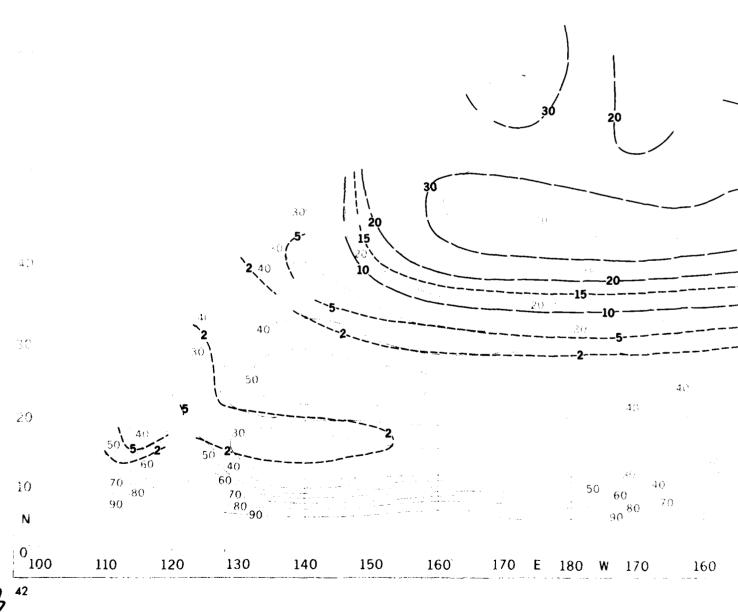




Solid Lines (dotted intermediates) - Percent frequency of wave slope parameter  $(\alpha) \leq 0.05$ 

136,

Dashed Lines (short intermediates) - Percent frequency of wave slope parameter ( $\alpha$ )  $\geq$ 0.10

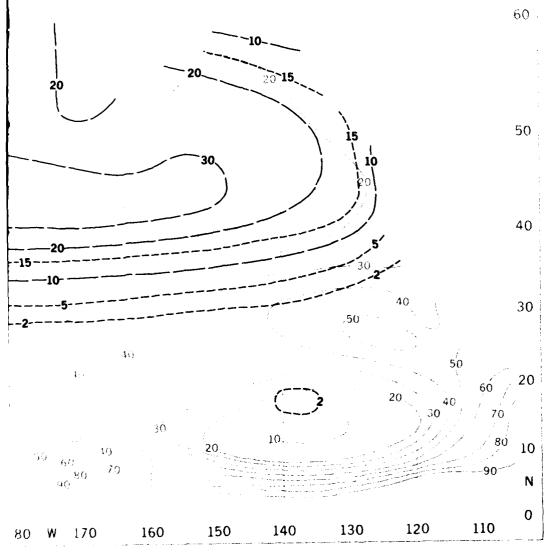


150

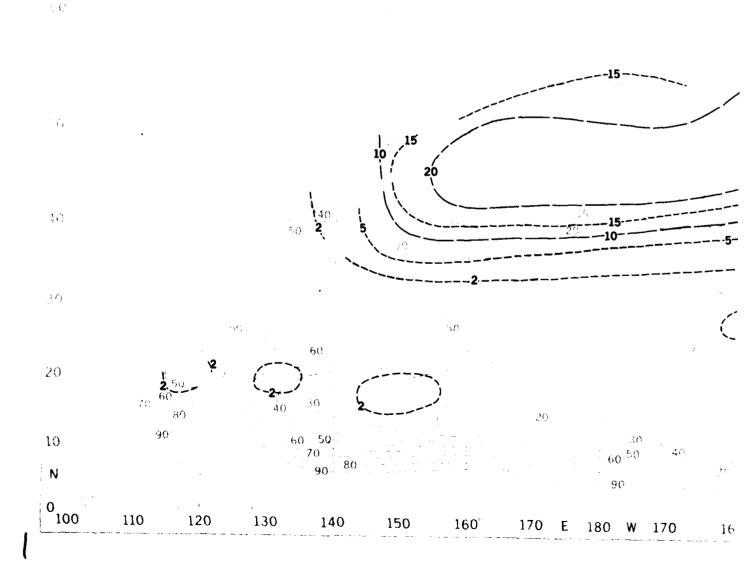
160

140

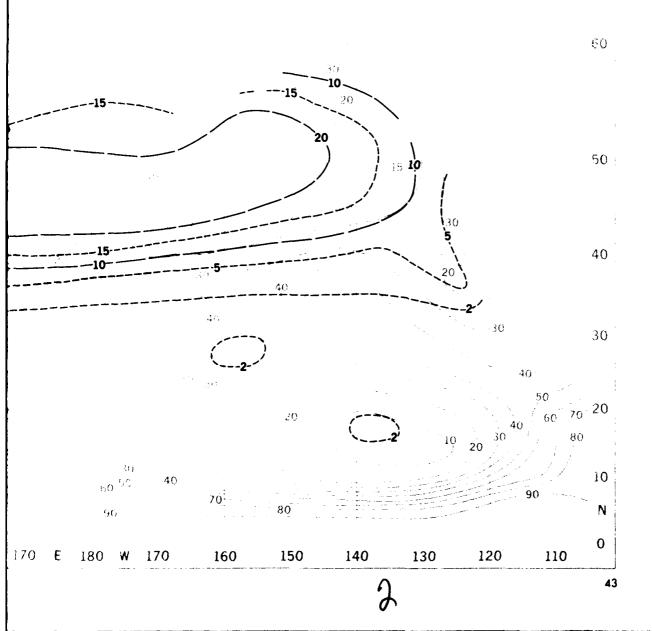
- 180 - 180 - 180 - 120 - 110 - 70



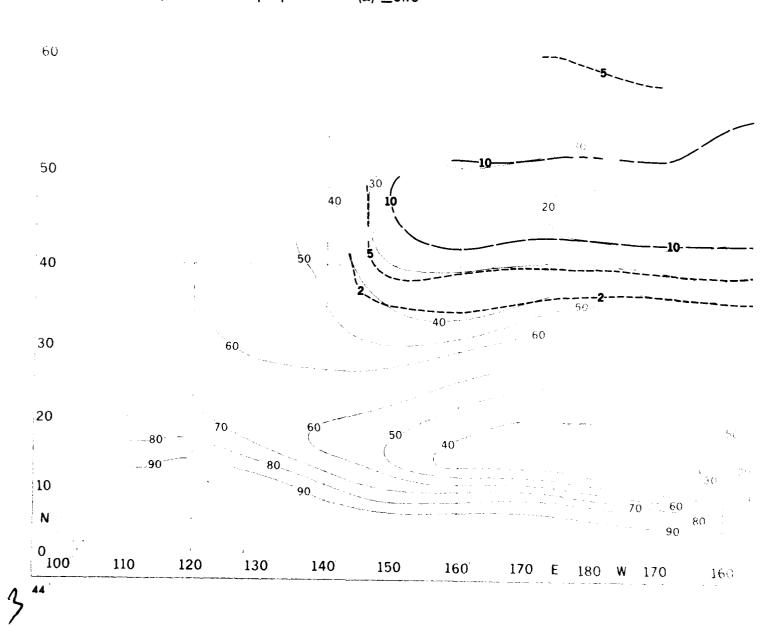
4

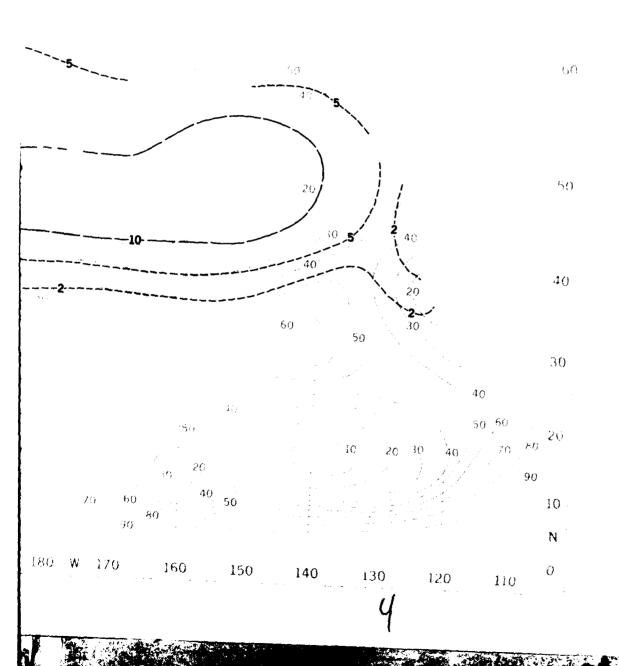


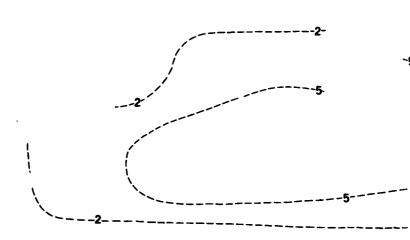
**APRIL** 



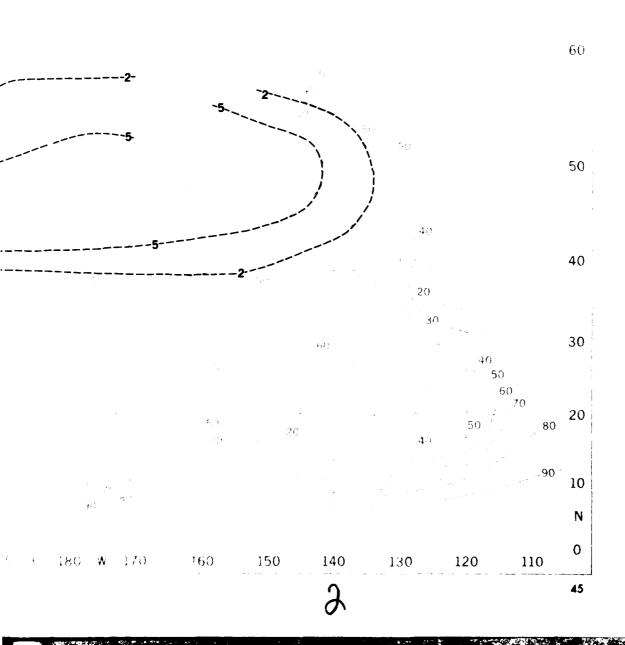
 $\frac{100}{70}$  110 120 130 140 156 160 170 E 186 W 171







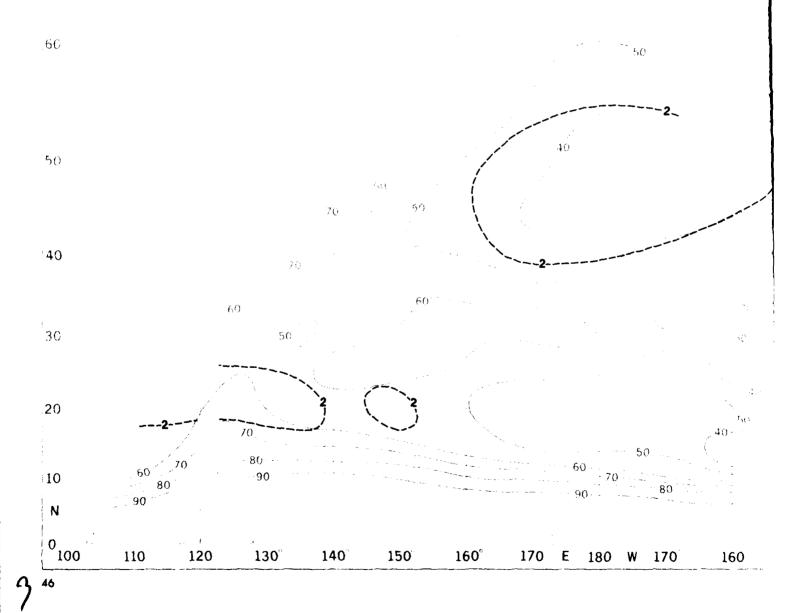
#### JUNE

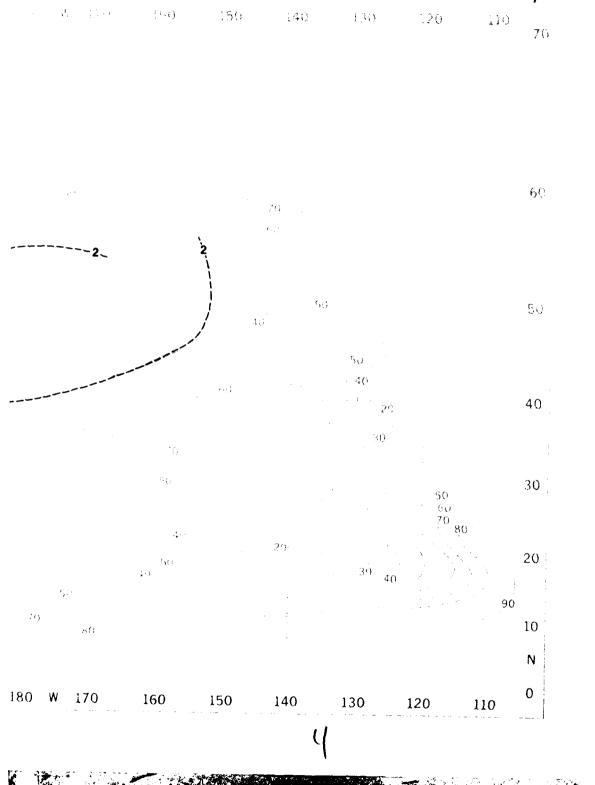


JULY

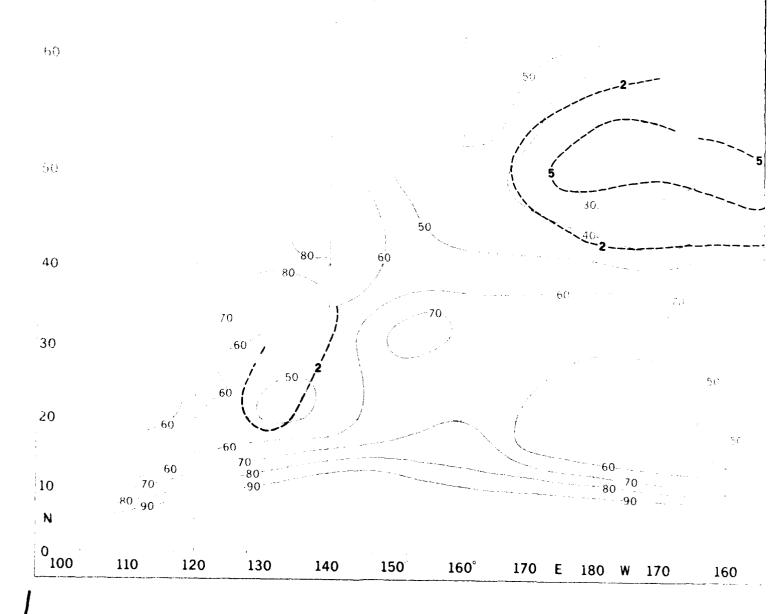
WAV

180 140 170 180 140 150 160 **170 E 180 W** 1**70** 267



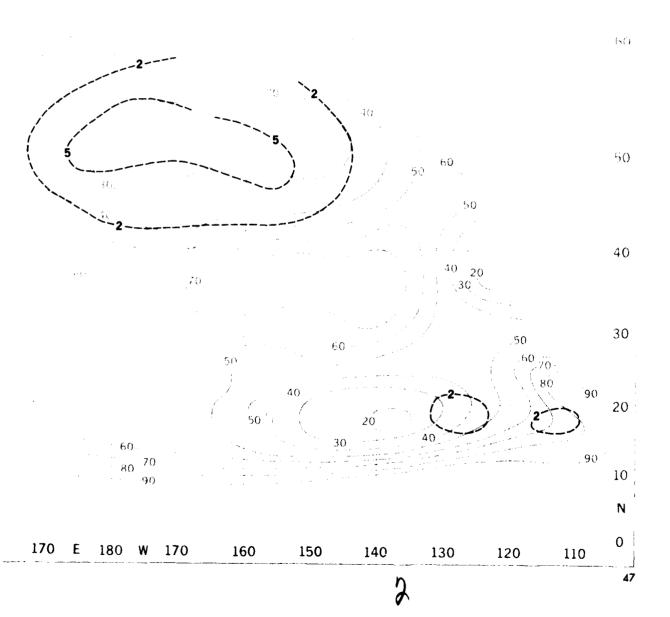


100 110 120 130 140 150 160 170 E 180 W 170



#### **AUGUST**



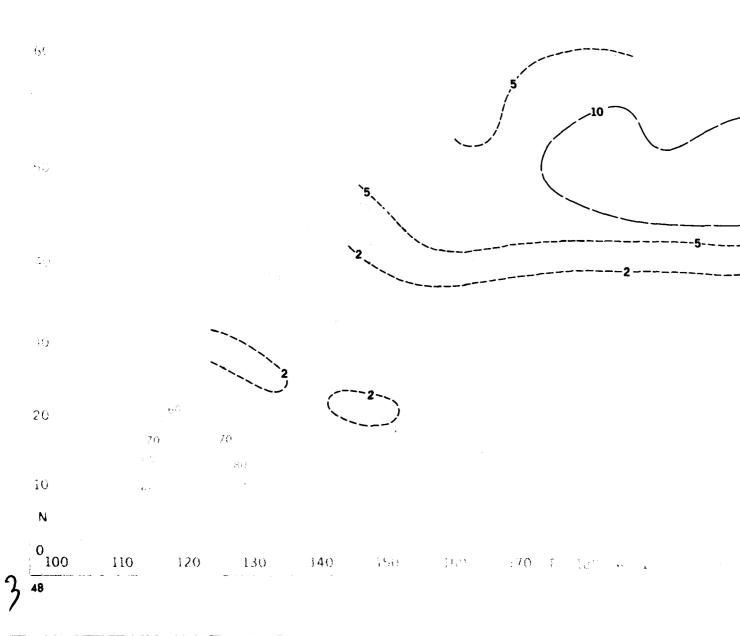


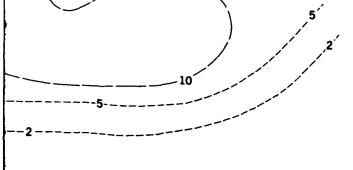
#### **SEPTEMBER**

**WAVE** 

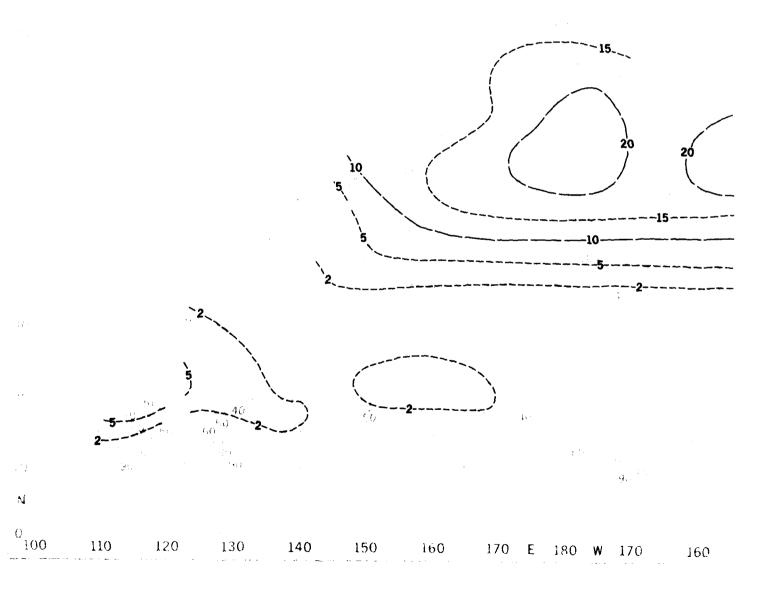
Solid Lines (dotted intermediates) - Percent frequency of wave slope parameter ( $\alpha$ )  $\leq$ 0.05

Dashed Lines (short intermediates) - Percent frequency of wave slope parameter  $(\alpha) \ge 0.10$ 

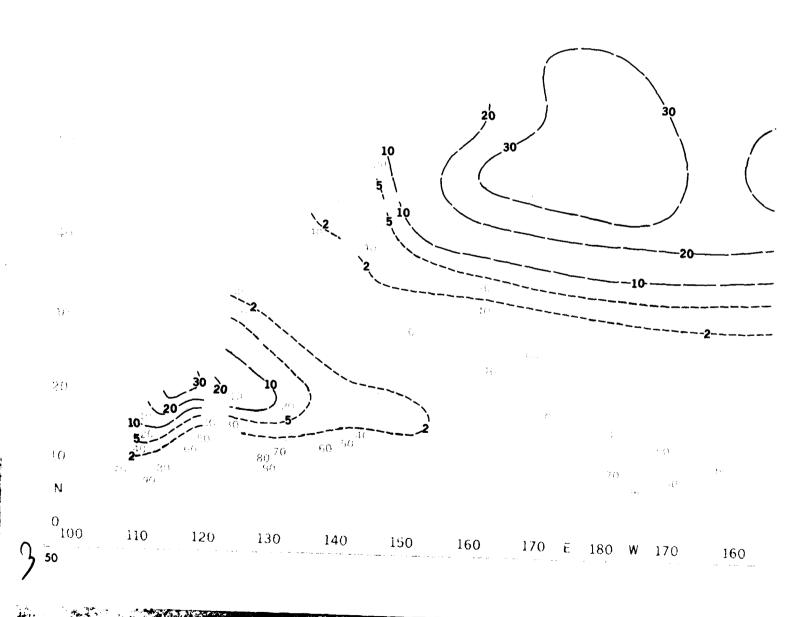


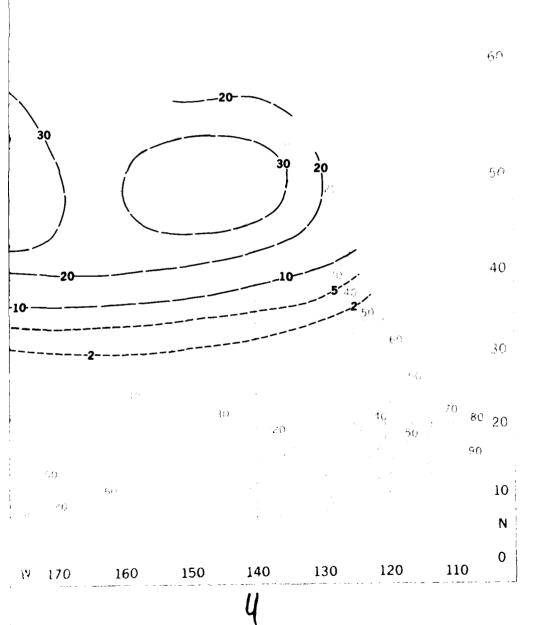


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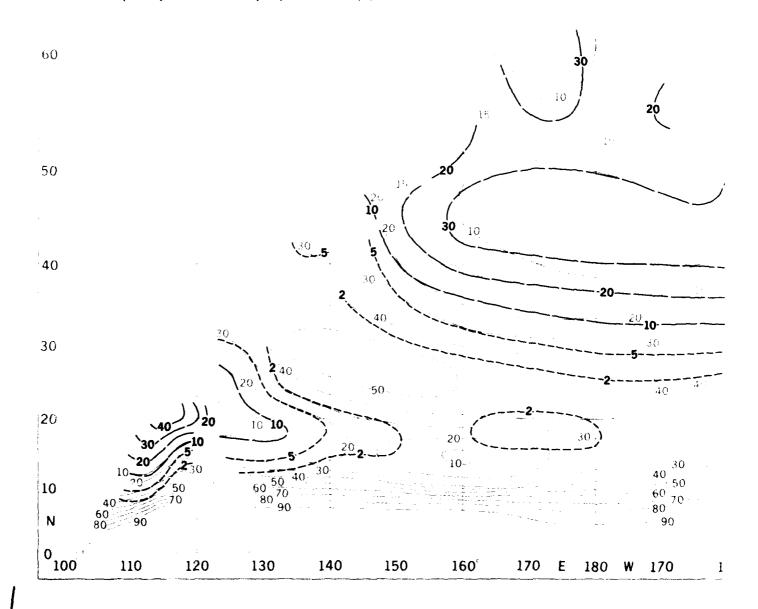


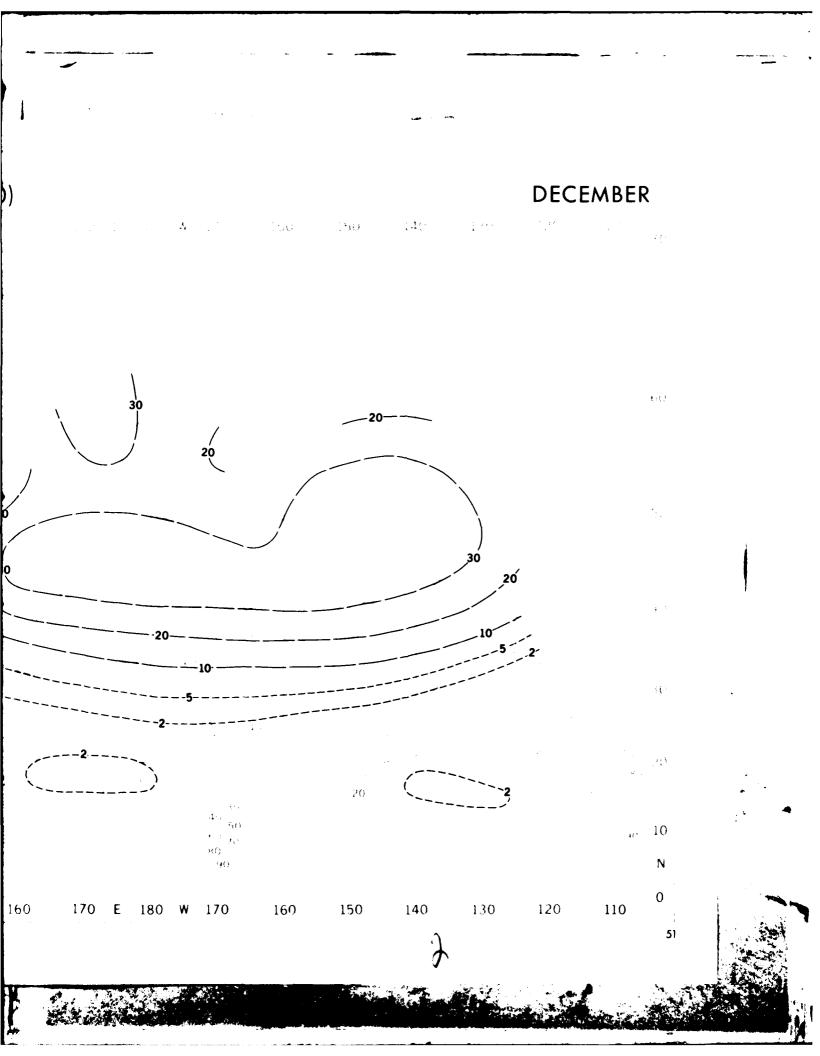
## OCTOBER 46% -4% 440 130 420 4010 180 W 176 160 150 140 130 120 110



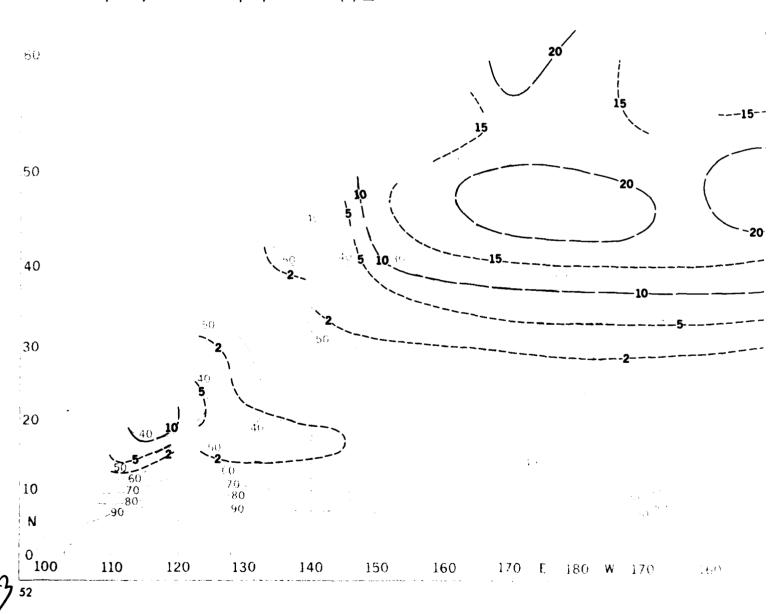


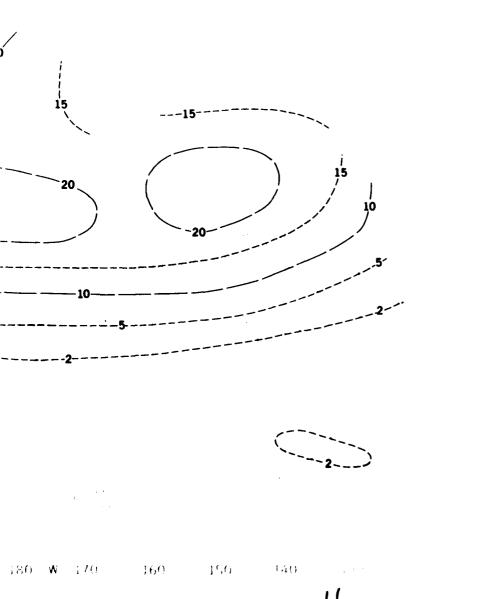
100 110 120 130 140 150 160 170 E 180 W 176





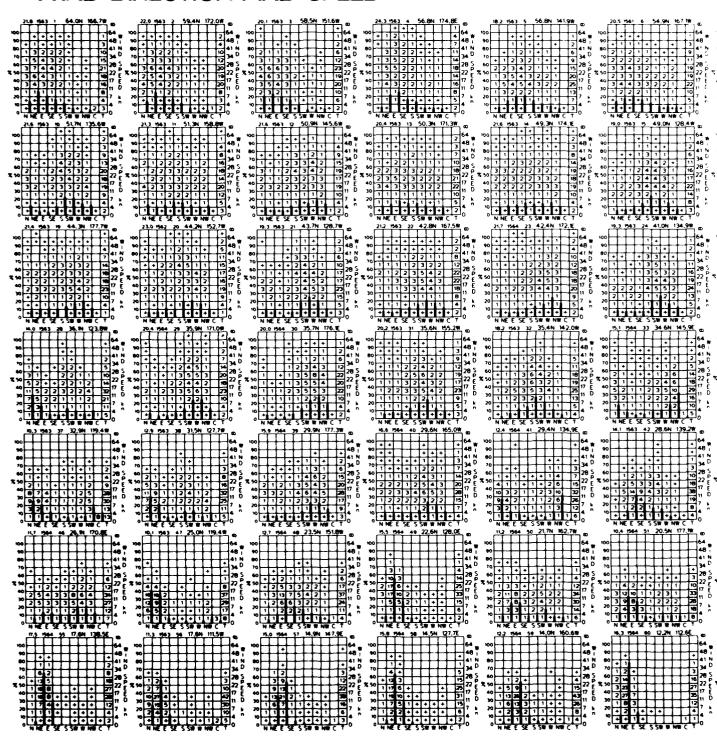
111



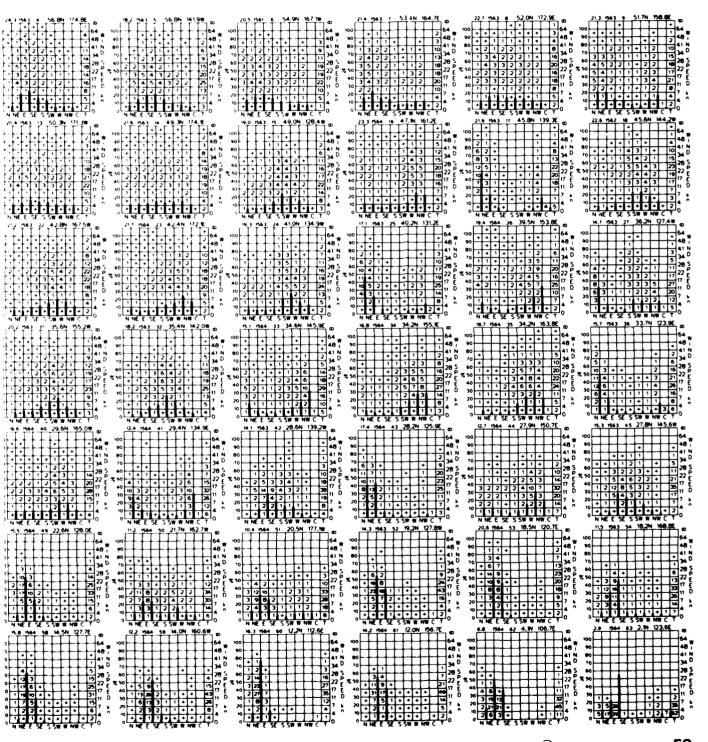


4

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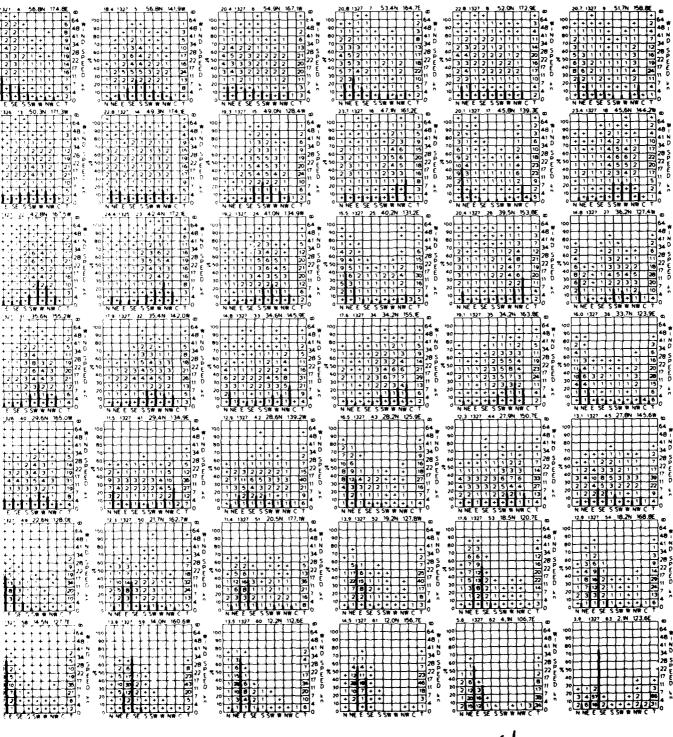
#### **JANUARY**

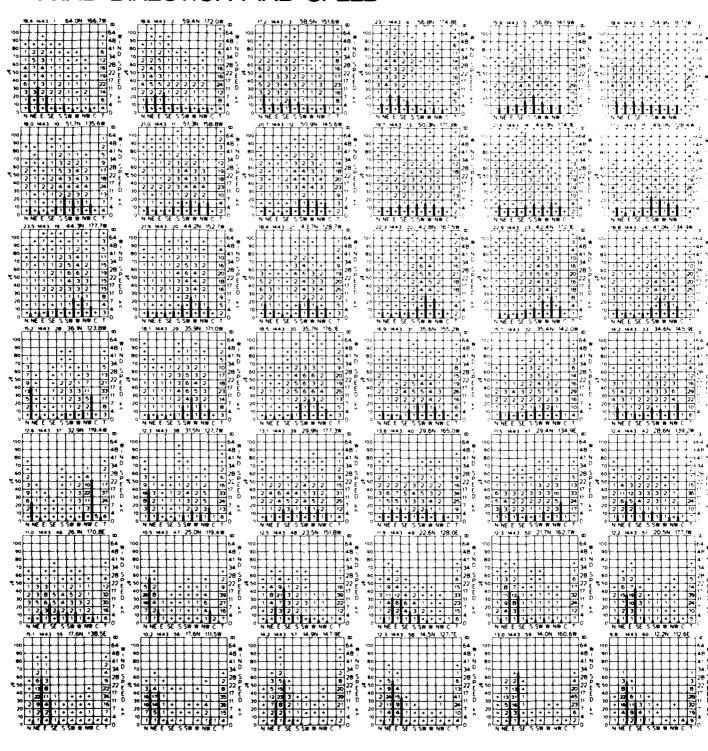


 $\partial$ 

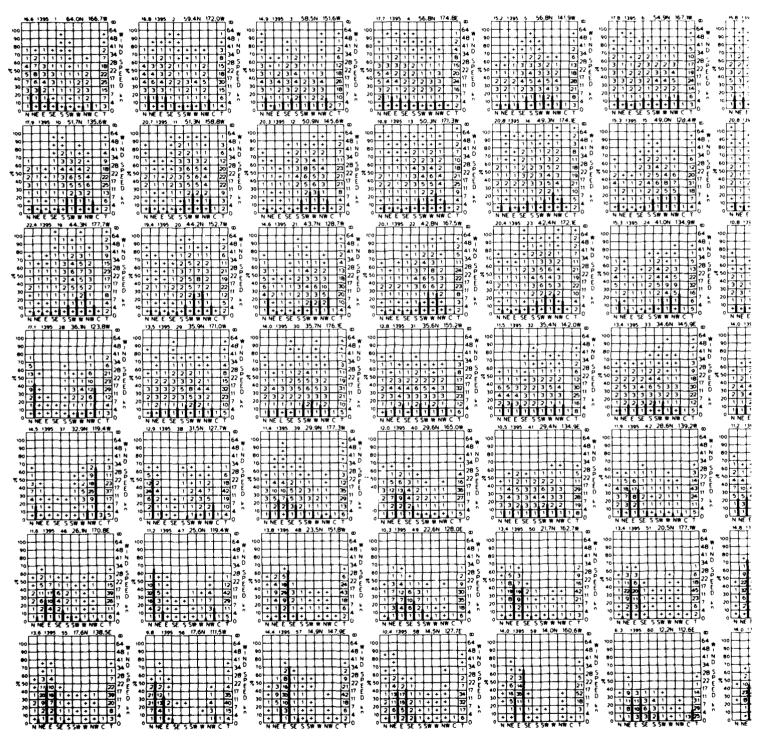
# **FEBRUARY** WIN

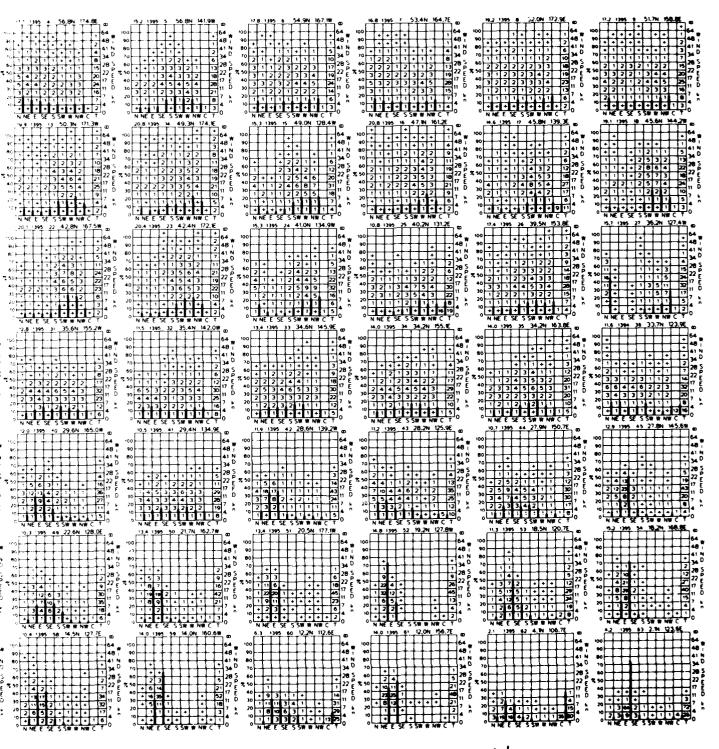
354

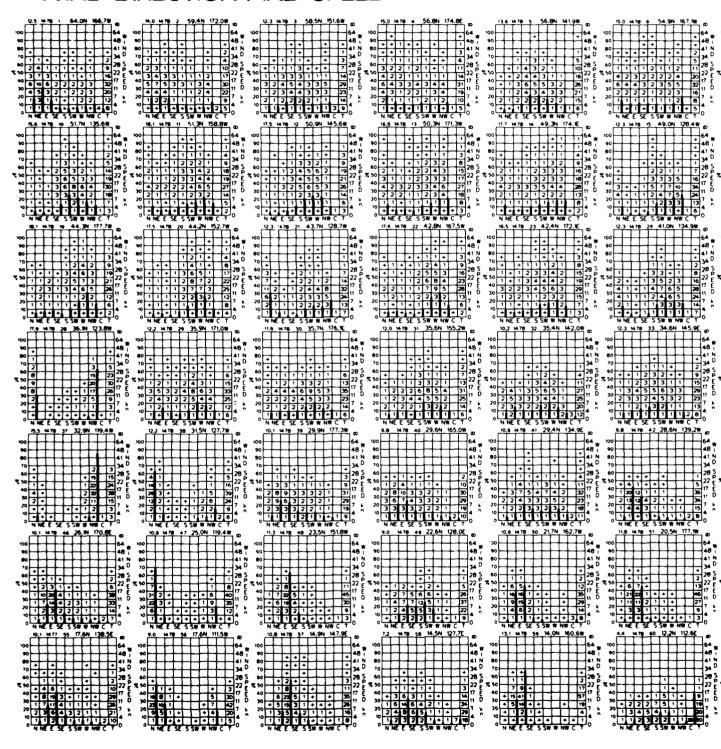




**MARCH** ED 55

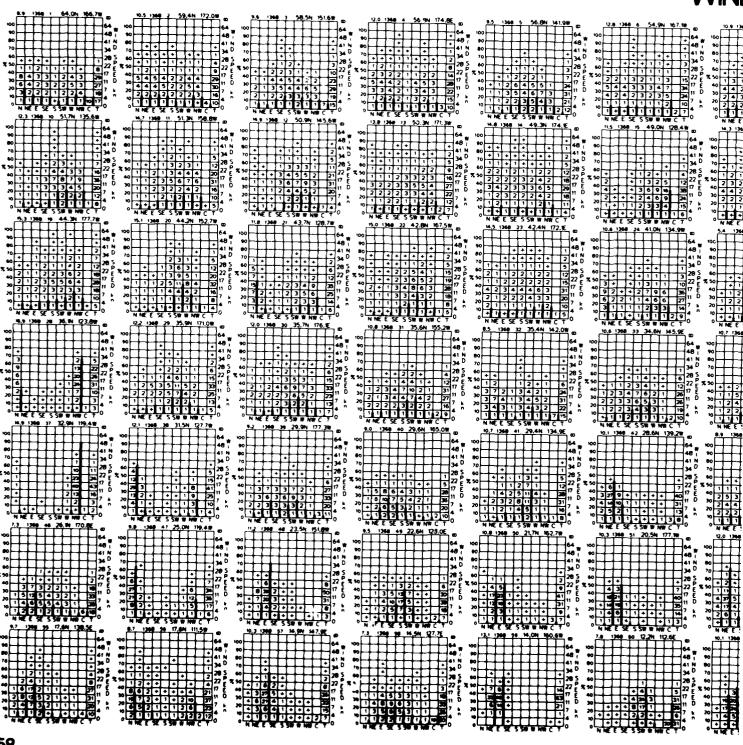




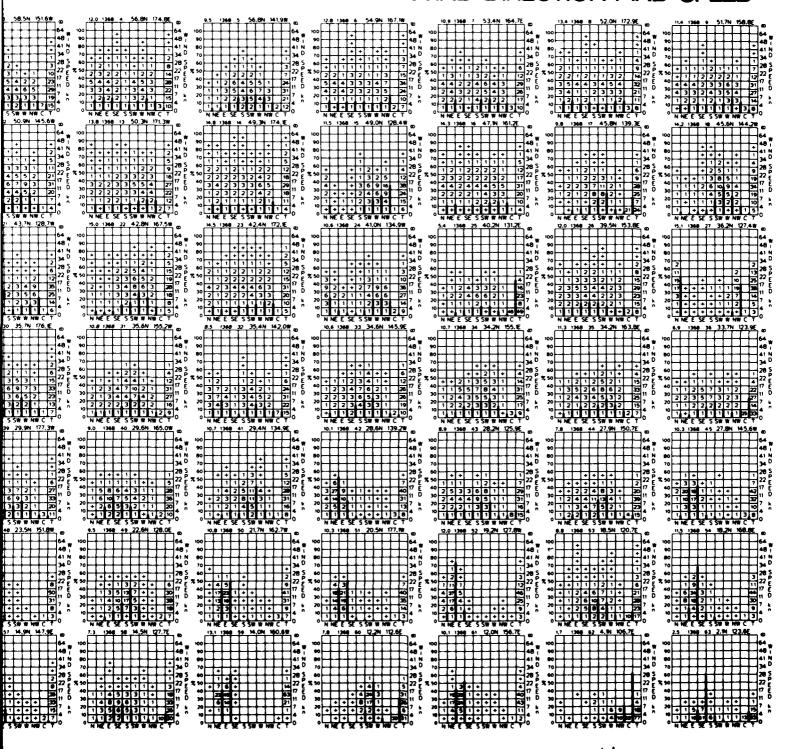


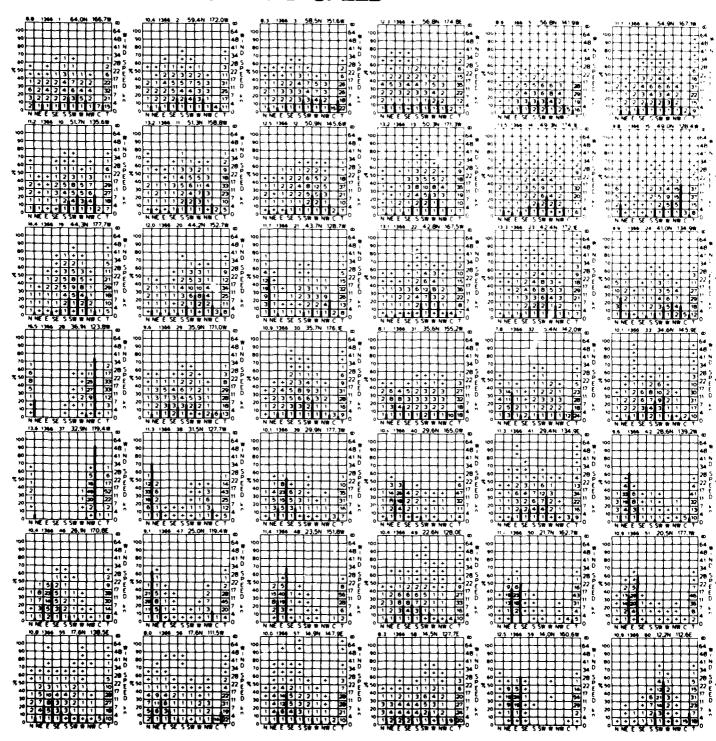
MAY **57**  JUNE

WINE



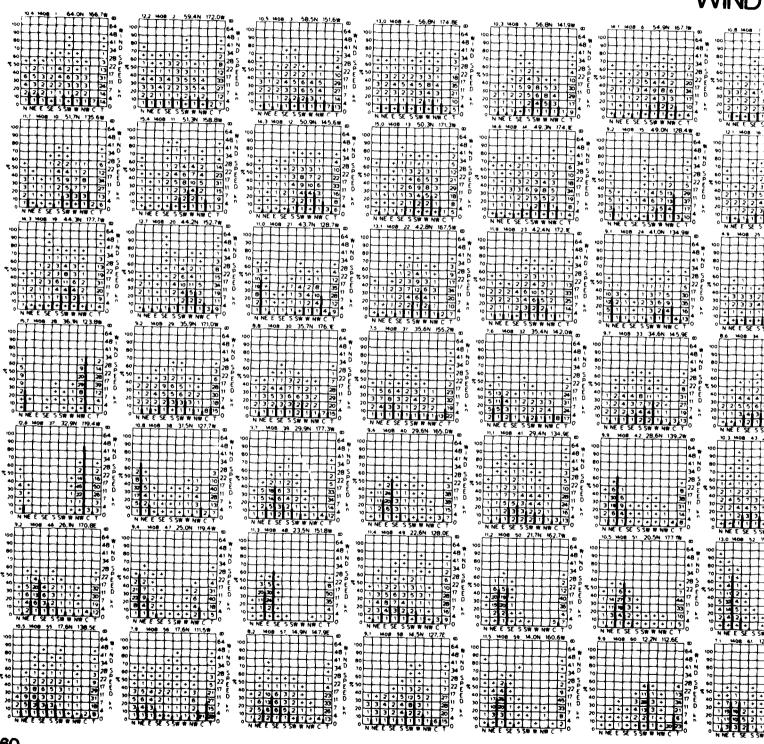
58



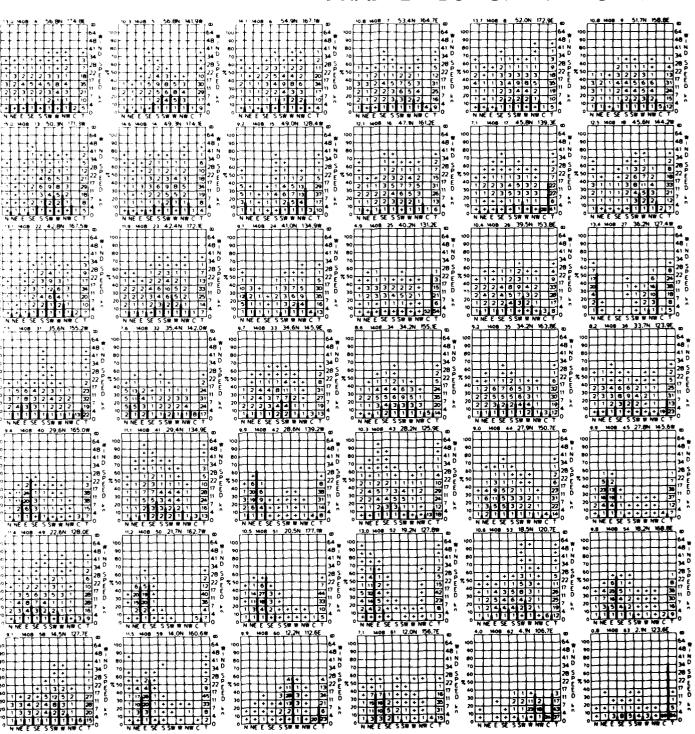


### **AUGUST**

### WIND

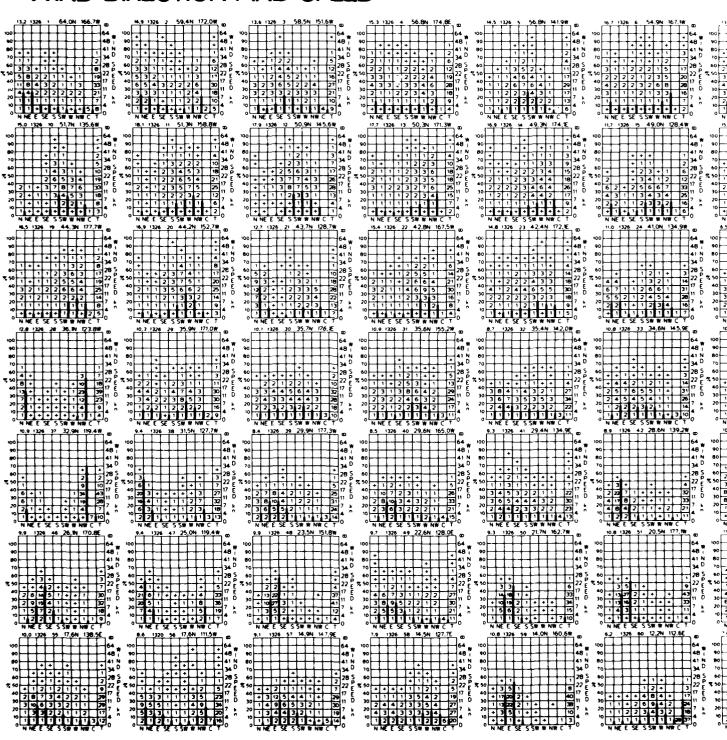


### WIND DIRECTION AND SPEED



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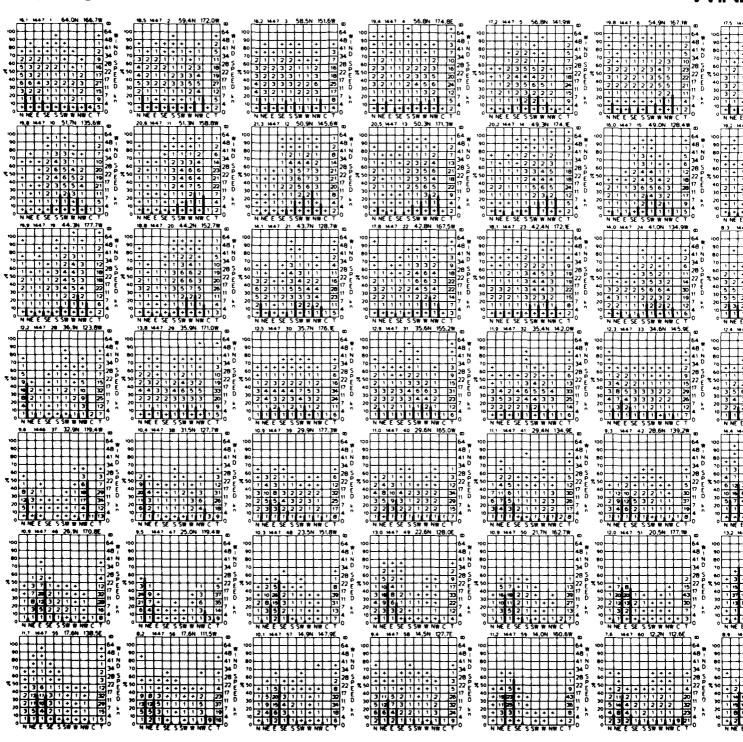
### WIND DIRECTION AND SPEED



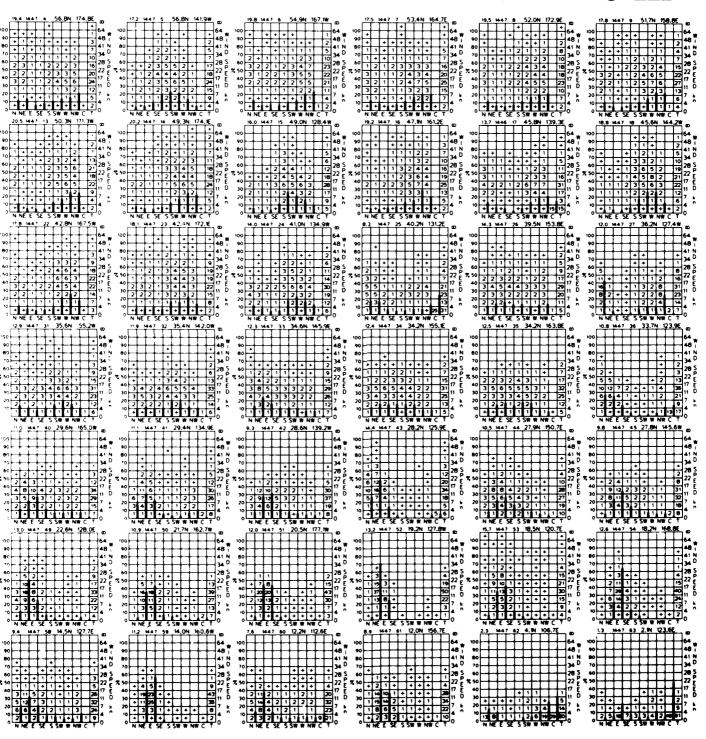
### **SEPTEMBER** ED

### OCTOBER

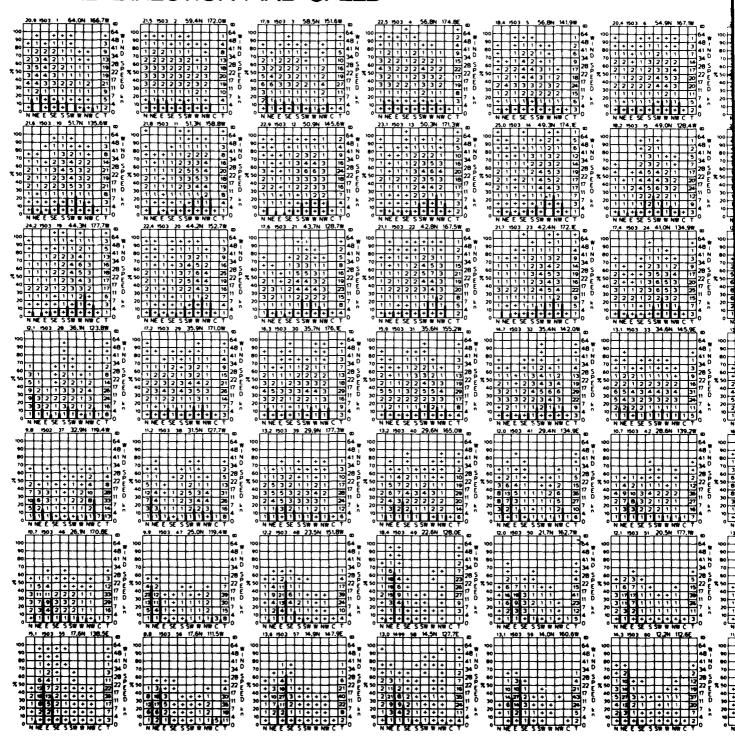
### WIND



### WIND DIRECTION AND SPEED



### WIND DIRECTION AND SPEED

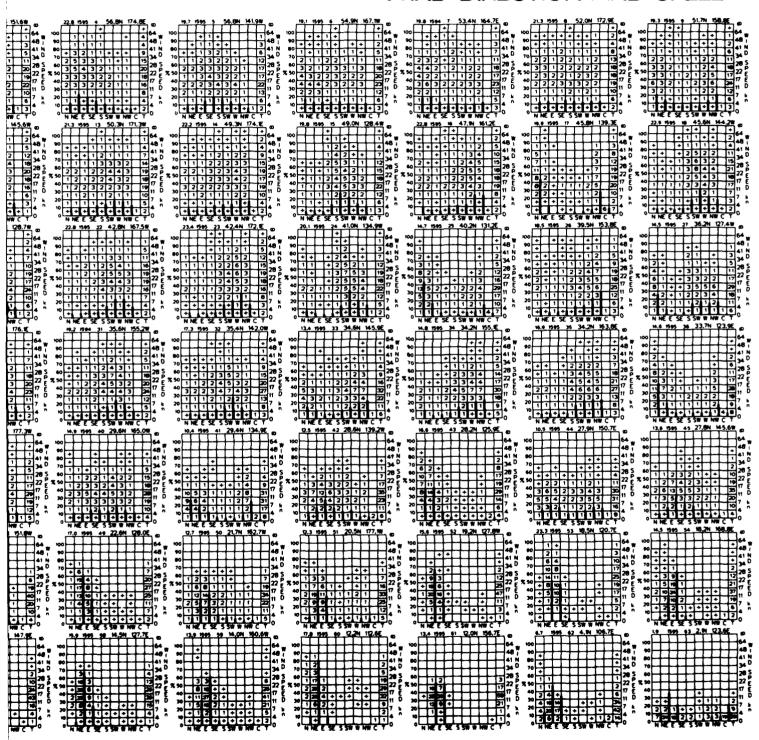


**NOVEMBER** PEED

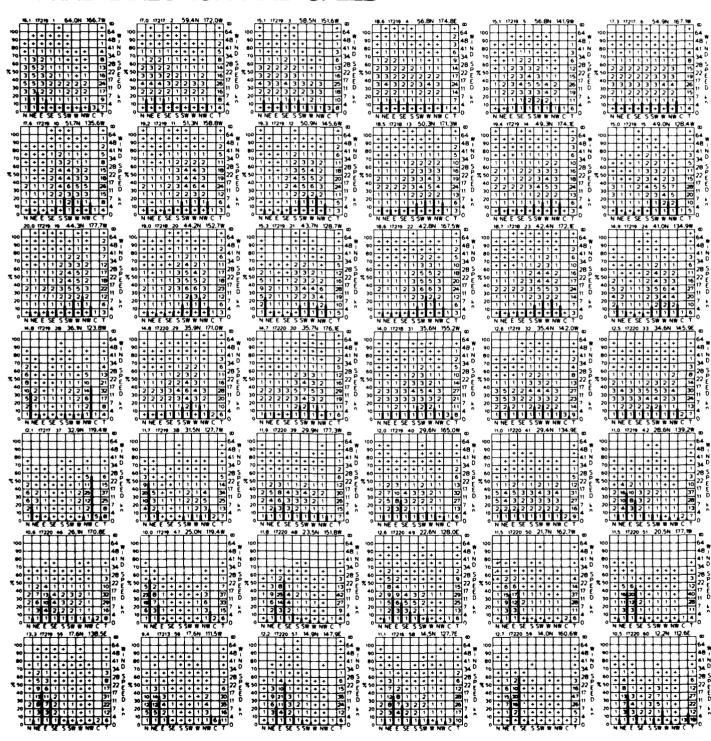
# **DECEMBER**

J 64

### WIND DIRECTION AND SPEED



### WIND DIRECTION AND SPEED



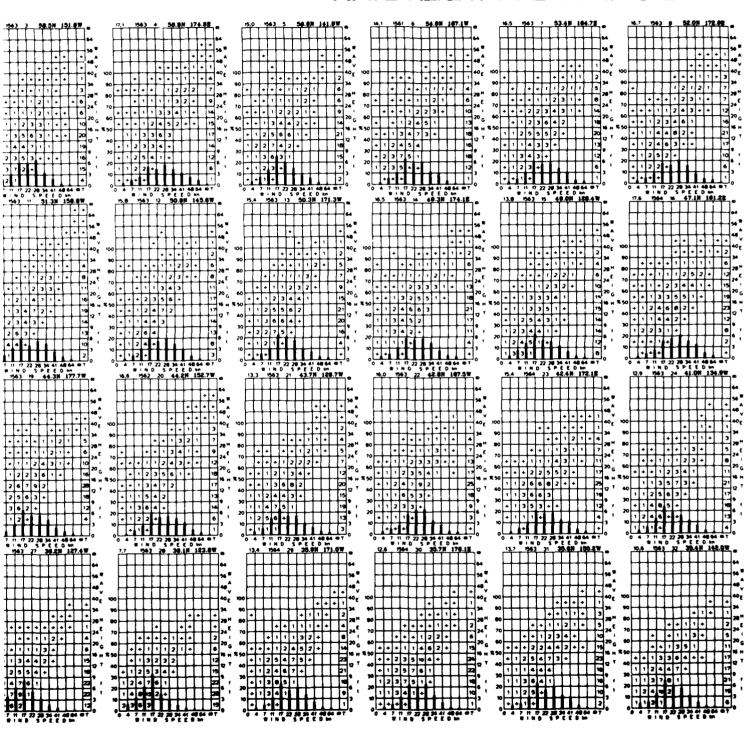
ľ

## EED **ANNUAL**

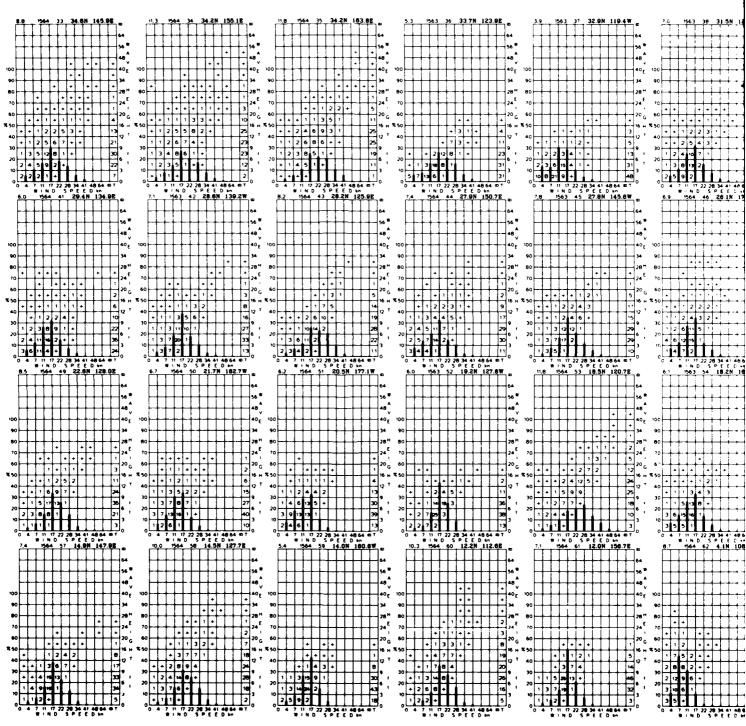
WAVE HEIGH **JANUARY** 

Q 66

### WAVE HEIGHT AND WIND SPEED

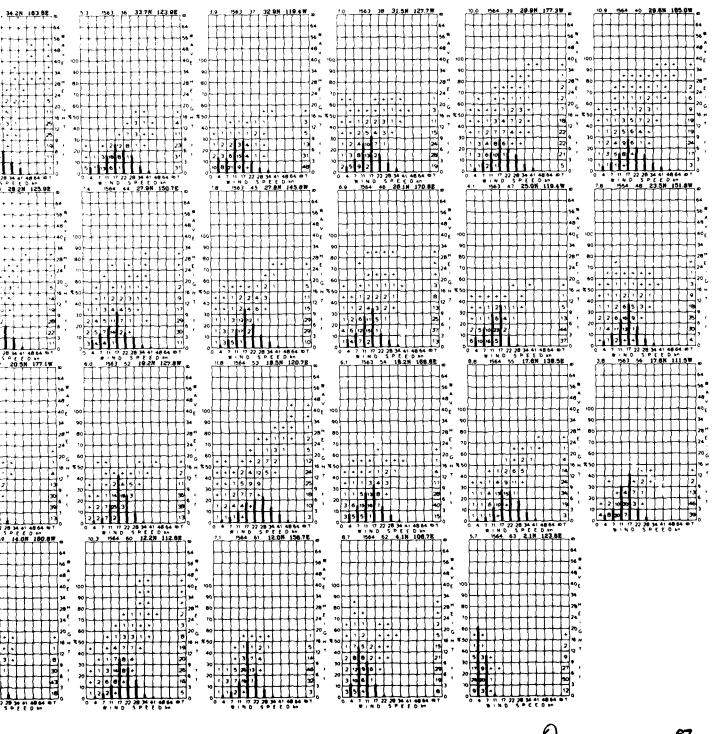


### WAVE HEIGHT AND WIND SPEED (Cont'd)



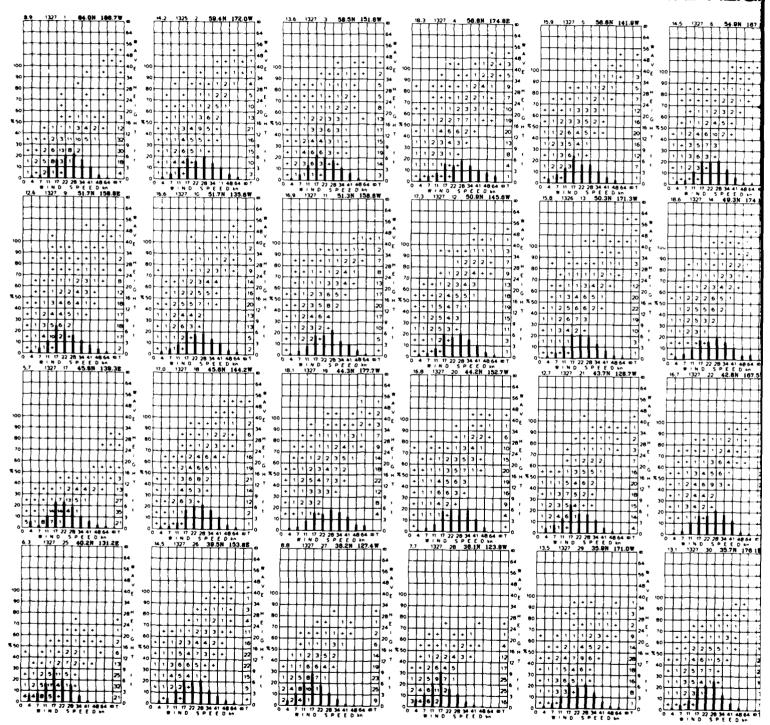
### SPEED (Cont'd)

### **JANUARY**

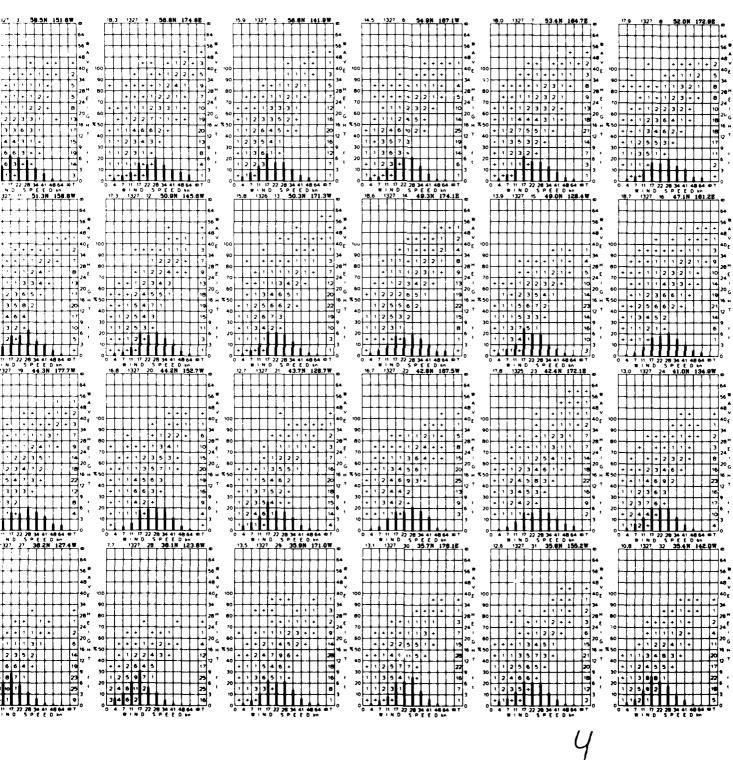


### **FEBRUARY**

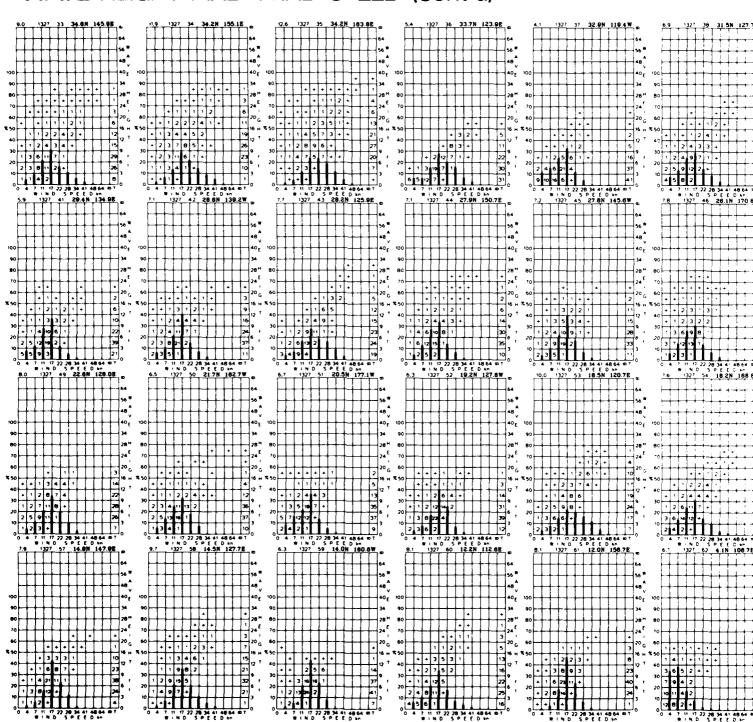
### WAVE HEIGH



### WAVE HEIGHT AND WIND SPEED

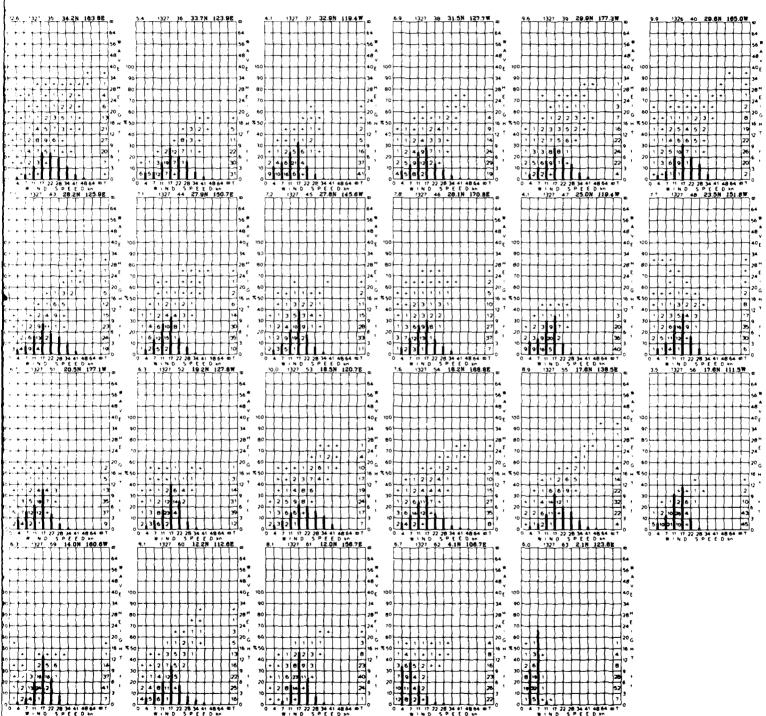


### WAVE HEIGHT AND WIND SPEED (Cont'd)



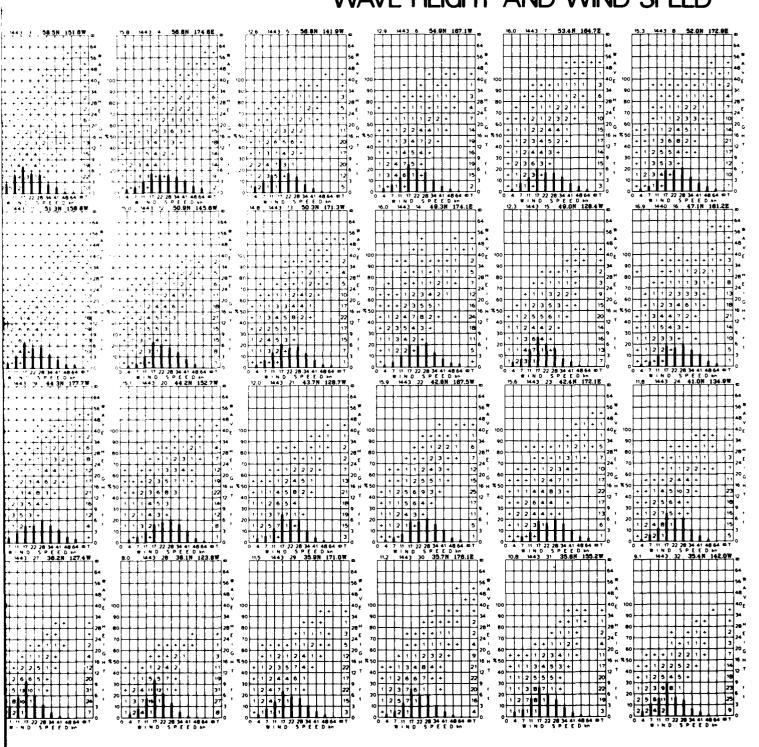
### /IND SPEED (Cont'd)

### **FEBRUARY**

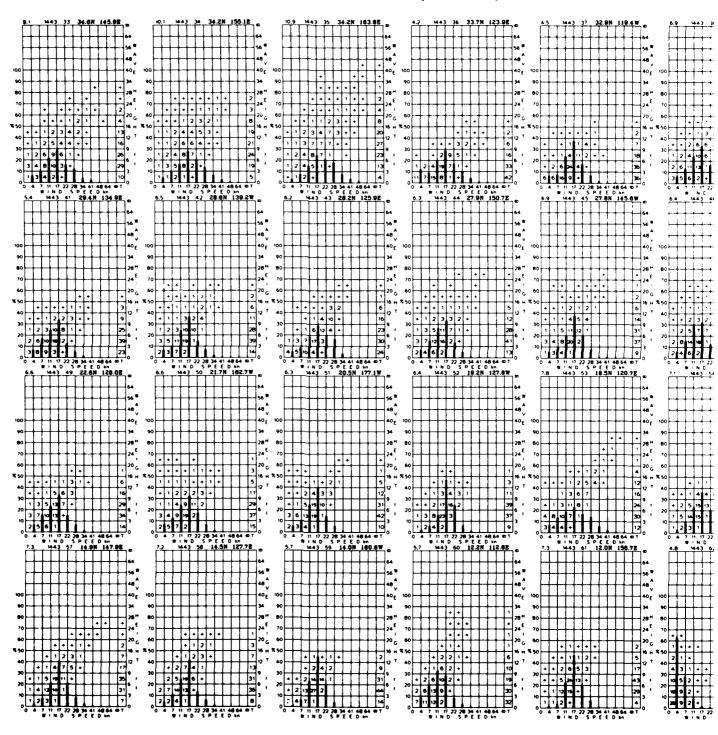


### **MARCH** WAVE HEIGH 70

### WAVE HEIGHT AND WIND SPEED



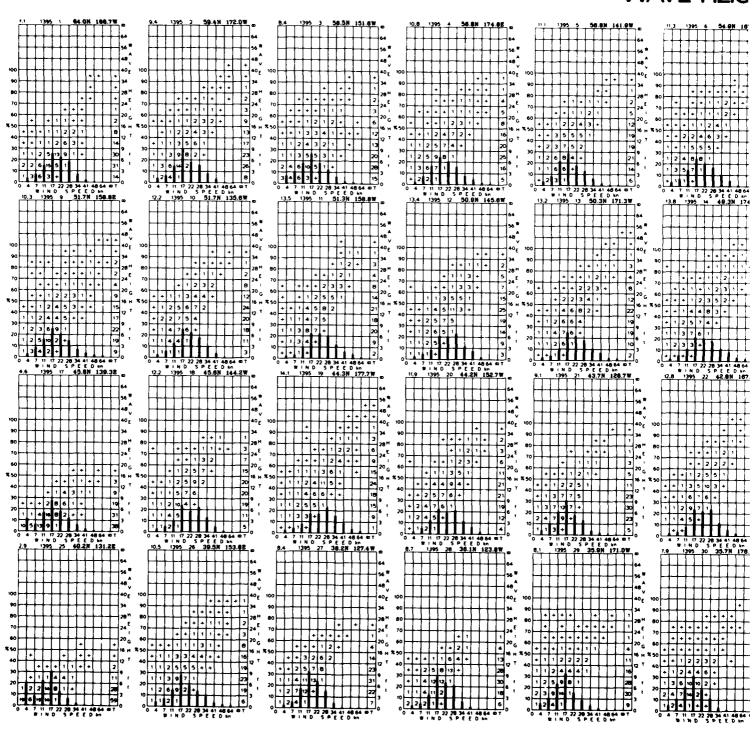
### WAVE HEIGHT AND WIND SPEED (Cont'd)



## ND SPEED (Cont'd) **MARCH**

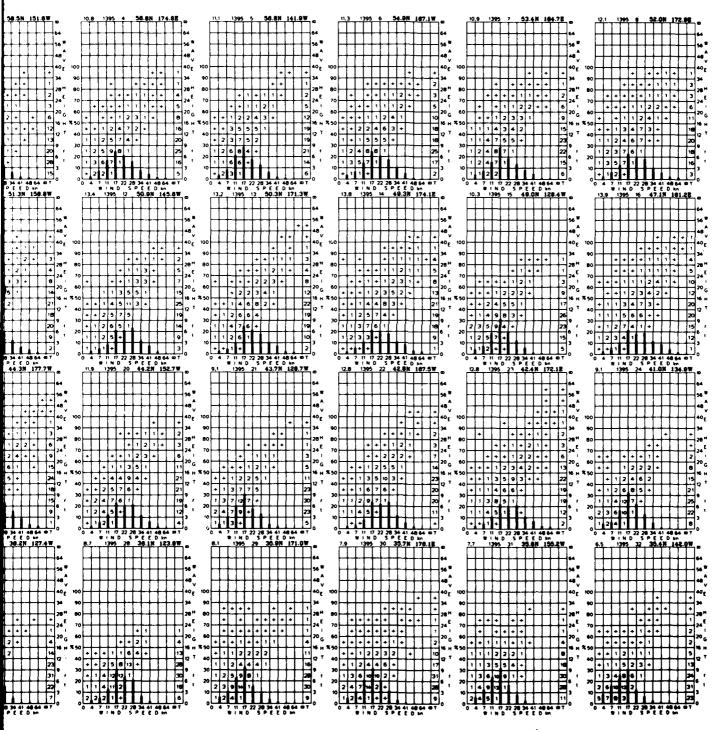
### **APRIL**

### WAVE HEIG

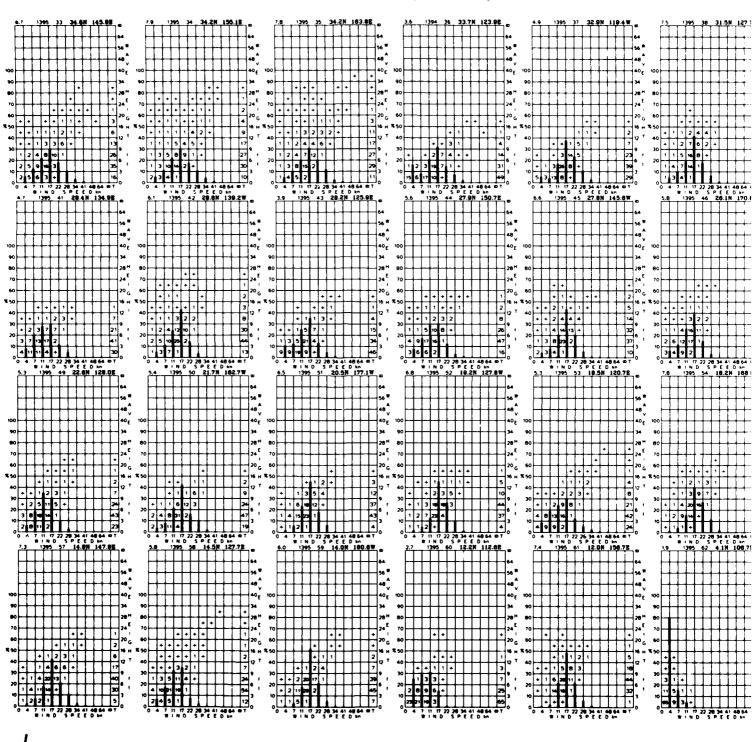


っ<sup>72</sup>

### WAVE HEIGHT AND WIND SPEED

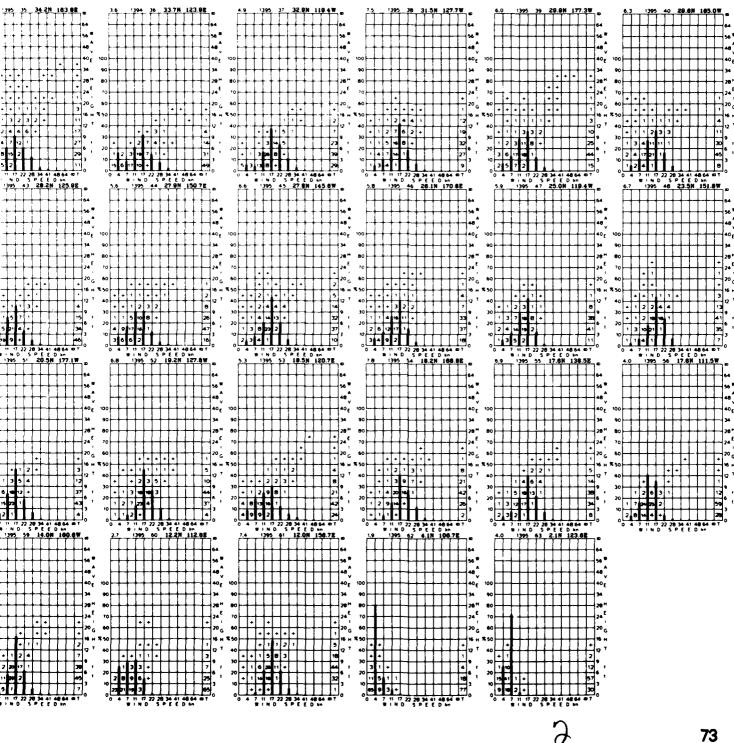


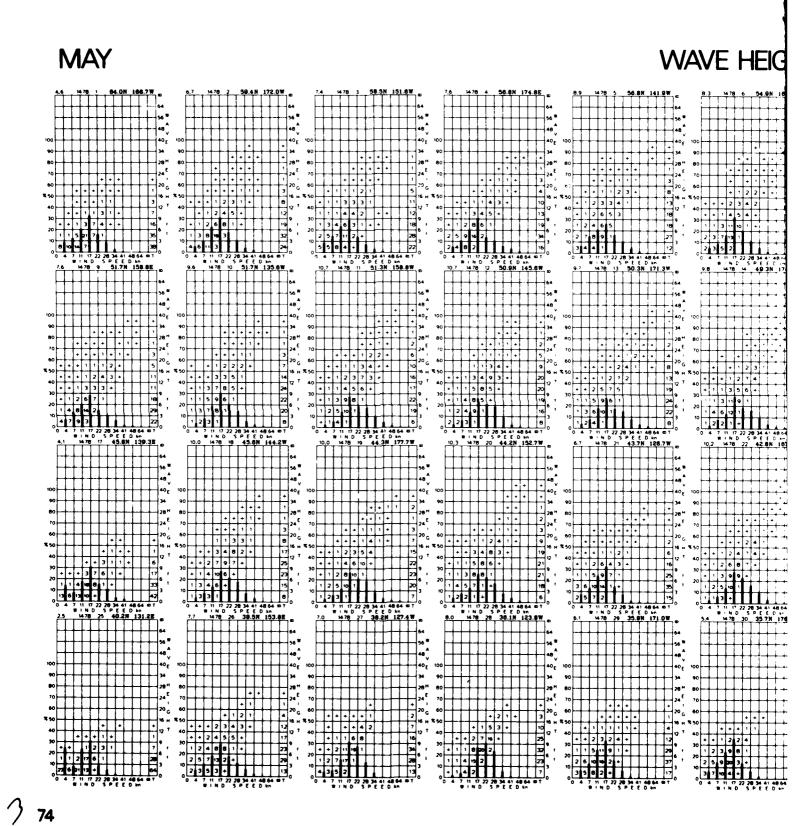
### WAVE HEIGHT AND WIND SPEED (Cont'd)



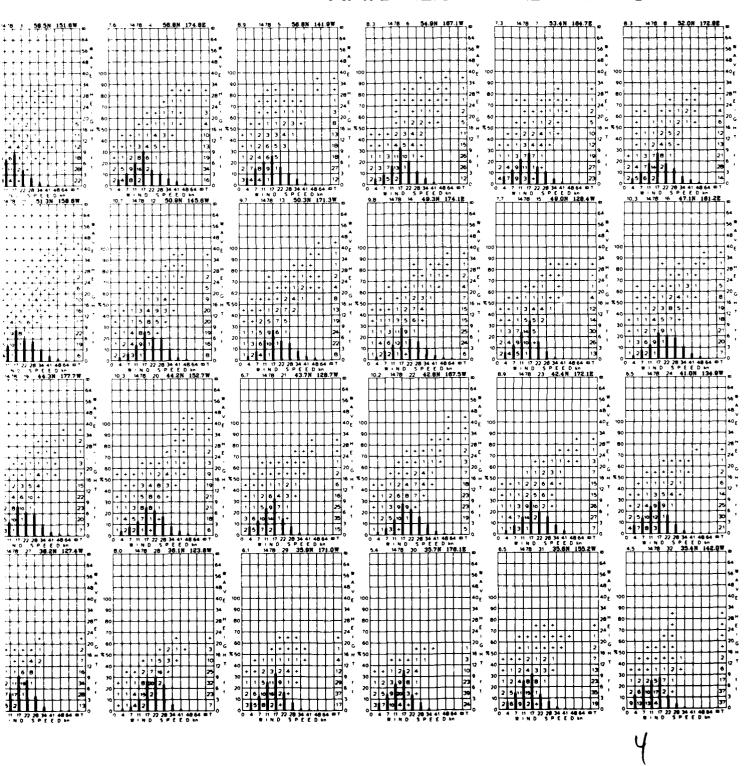
### ID SPEED (Cont'd)

### **APRIL**

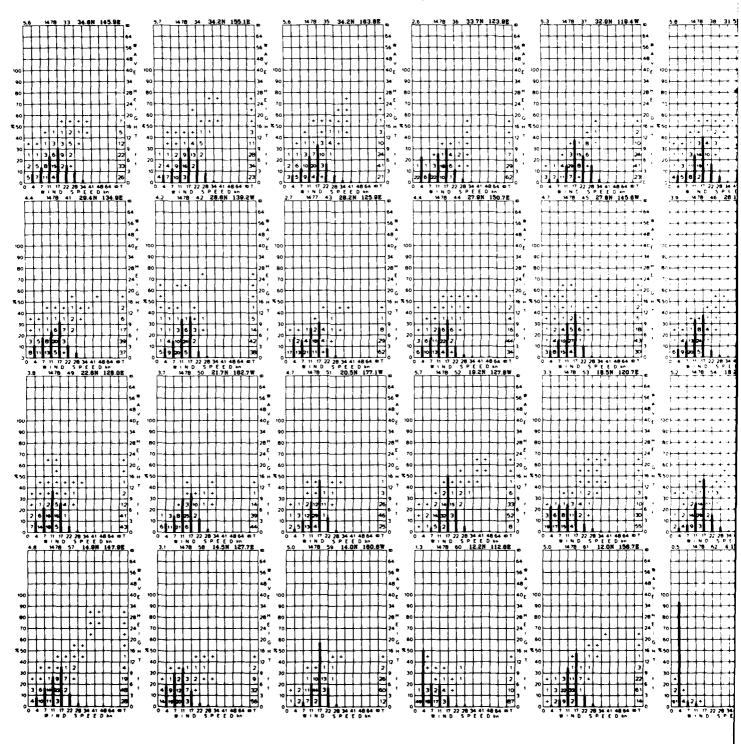


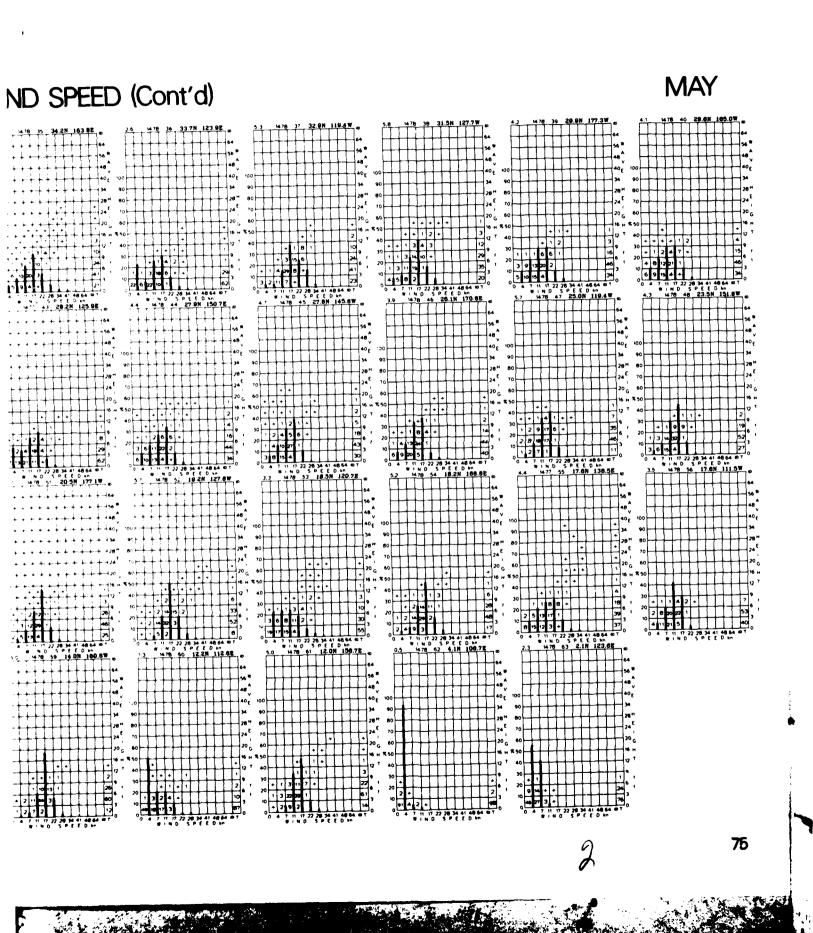


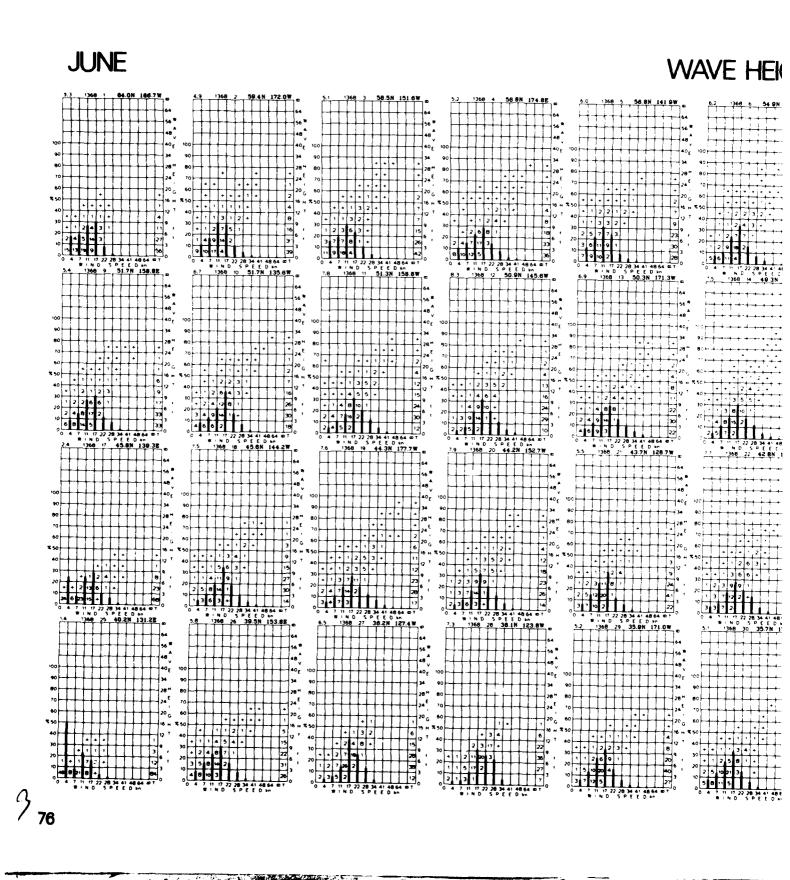
### WAVE HEIGHT AND WIND SPEED



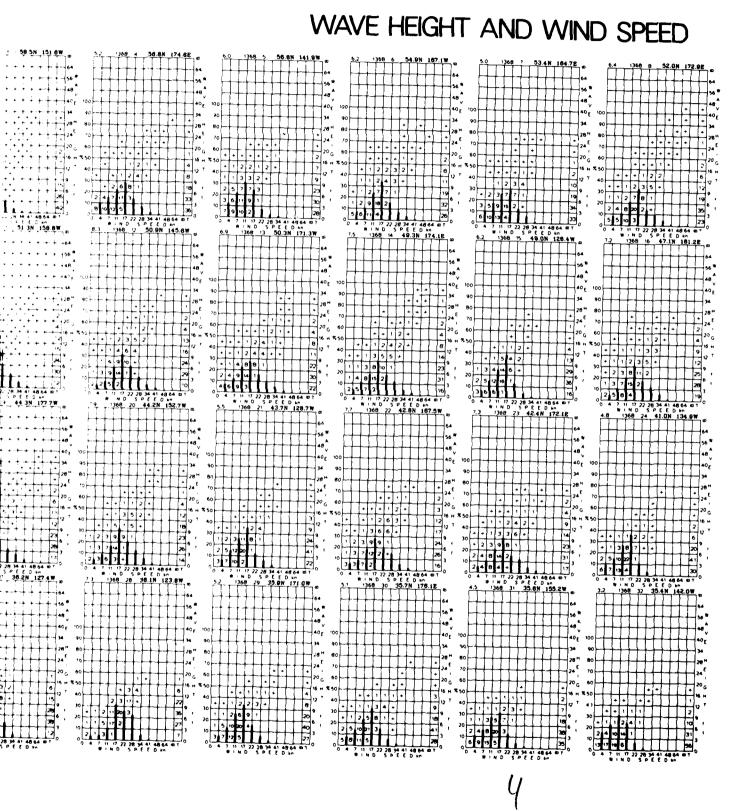
### WAVE HEIGHT AND WIND SPEED (Cont'd)



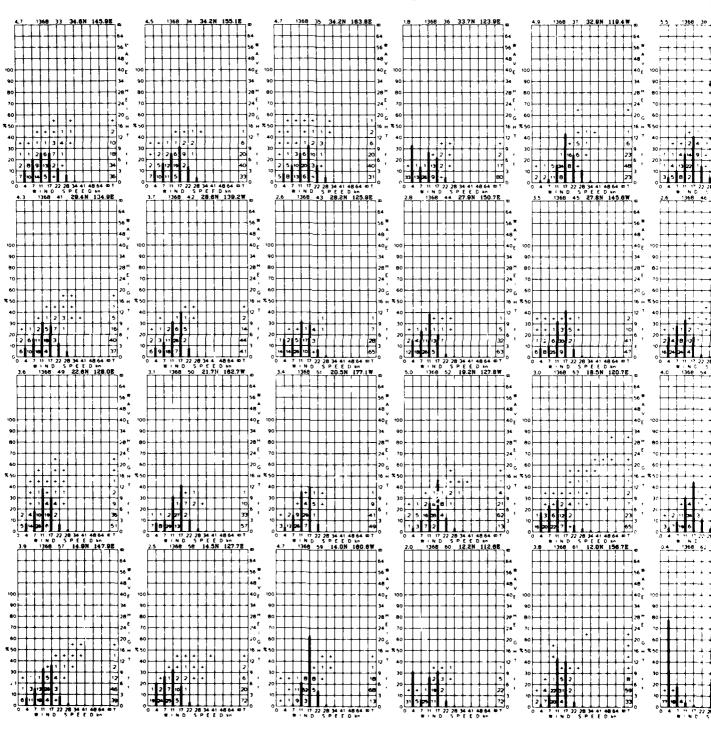




### WAVE HEIGHT AND WIND SPEED

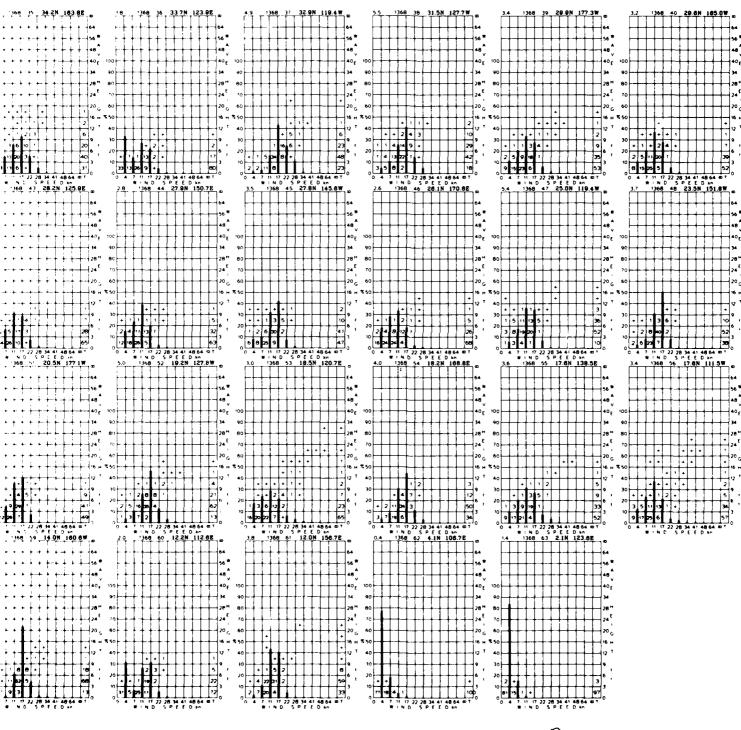


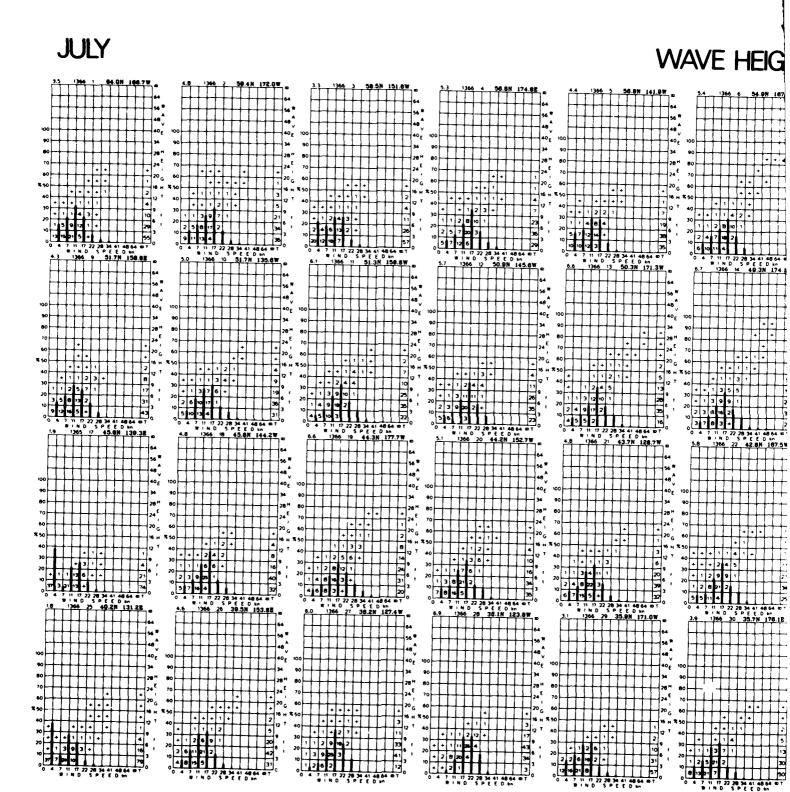
### WAVE HEIGHT AND WIND SPEED (Cont'd)



### ND SPEED (Cont'd)

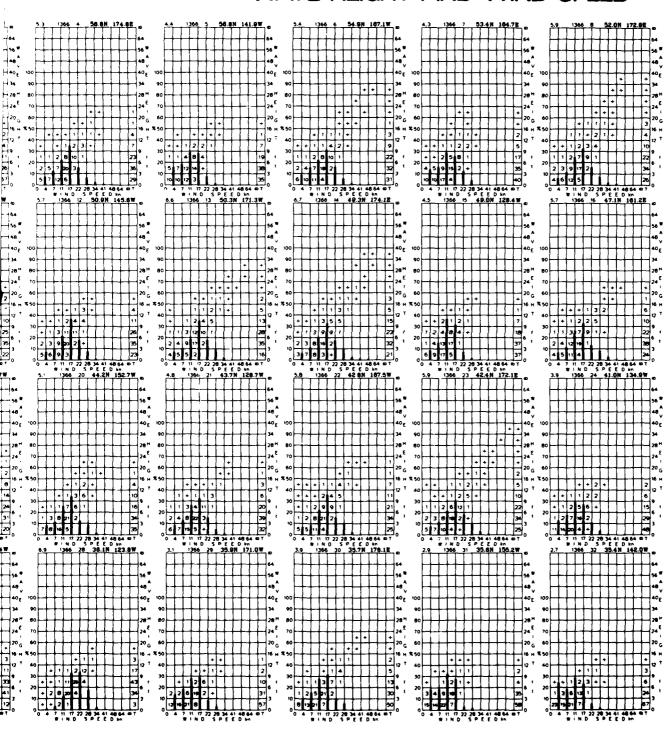
### JUNE





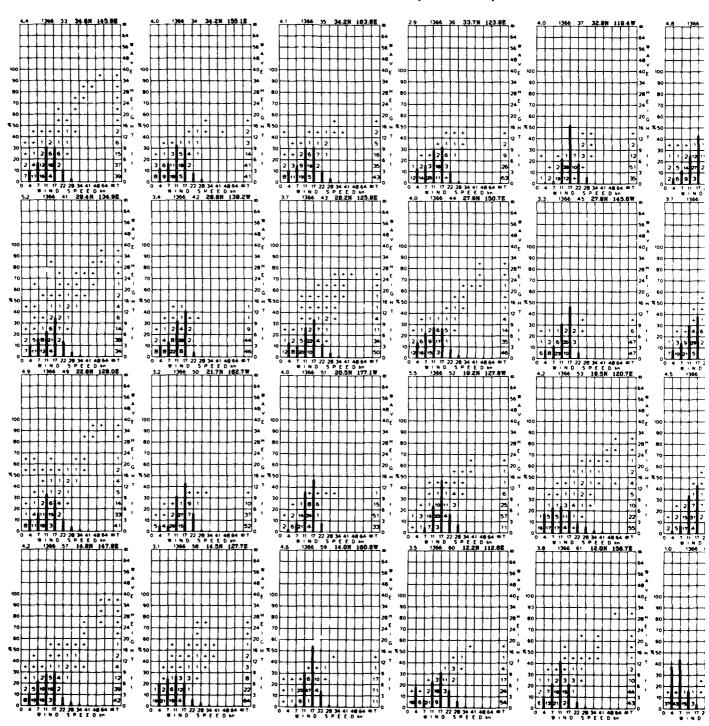
3 78

## WAVE HEIGHT AND WIND SPEED

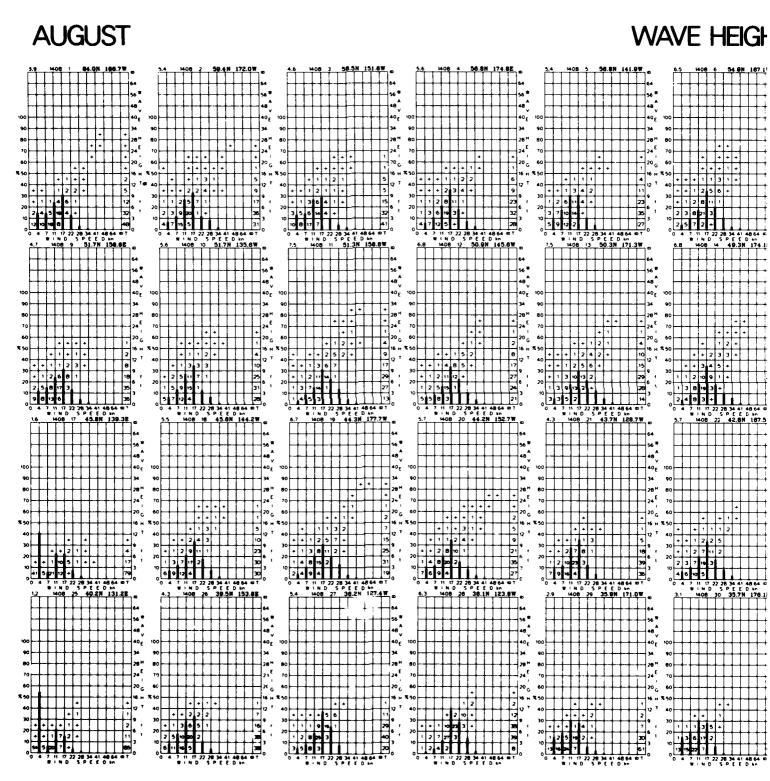


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## WAVE HEIGHT AND WIND SPEED (Cont'd)

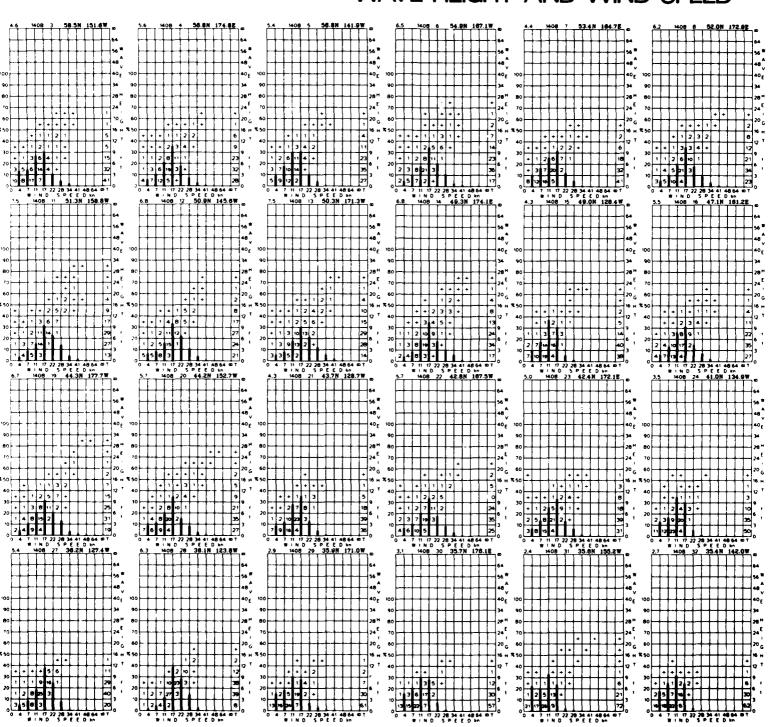


# VIND SPEED (Cont'd) JULY

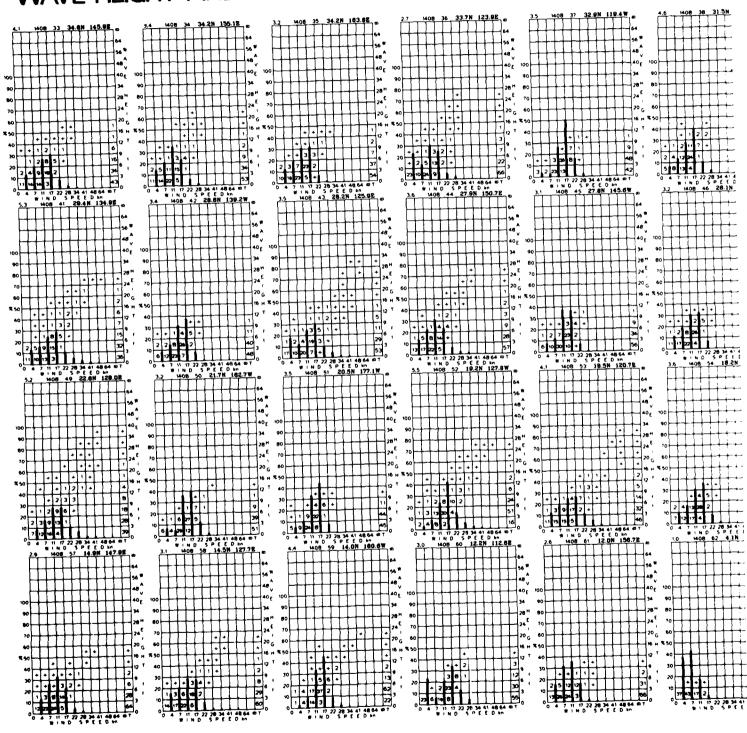


3 8C

## WAVE HEIGHT AND WIND SPEED



## WAVE HEIGHT AND WIND SPEED (Cont'd)

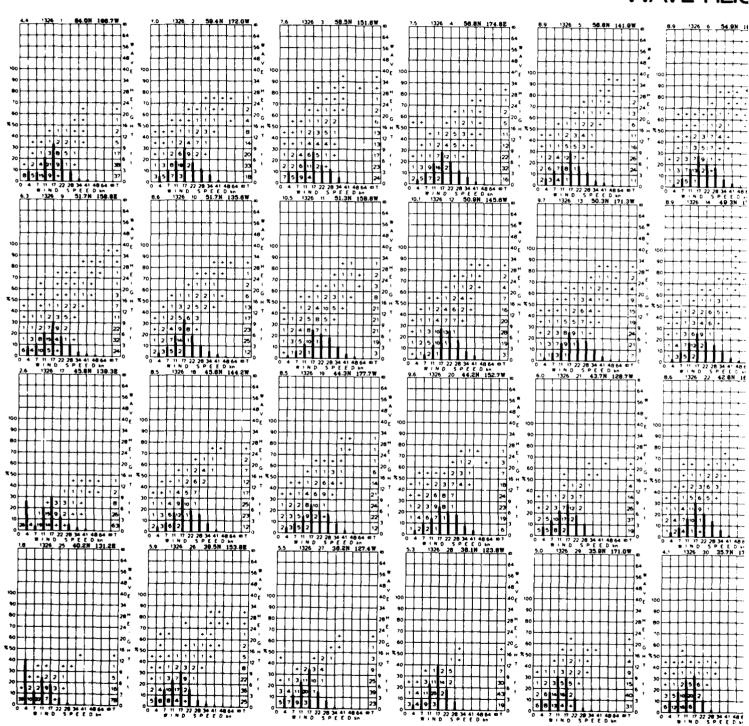


## ND SPEED (Cont'd) **AUGUST**

7

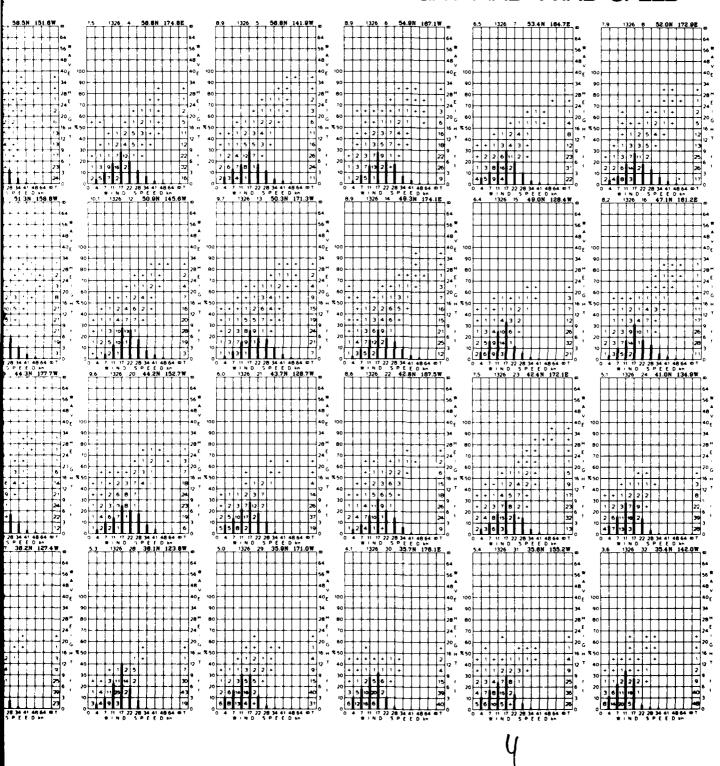
## **SEPTEMBER**

## WAVE HEIC

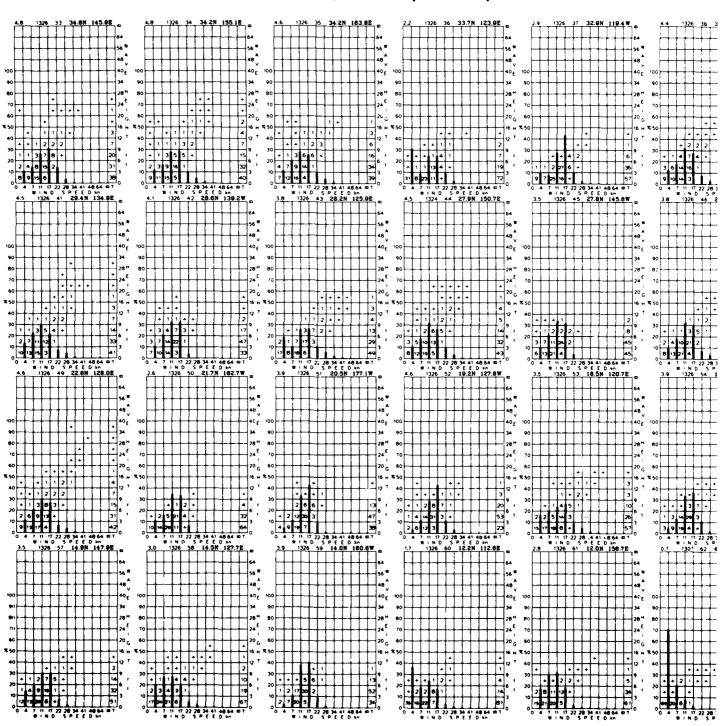


3 82

## WAVE HEIGHT AND WIND SPEED

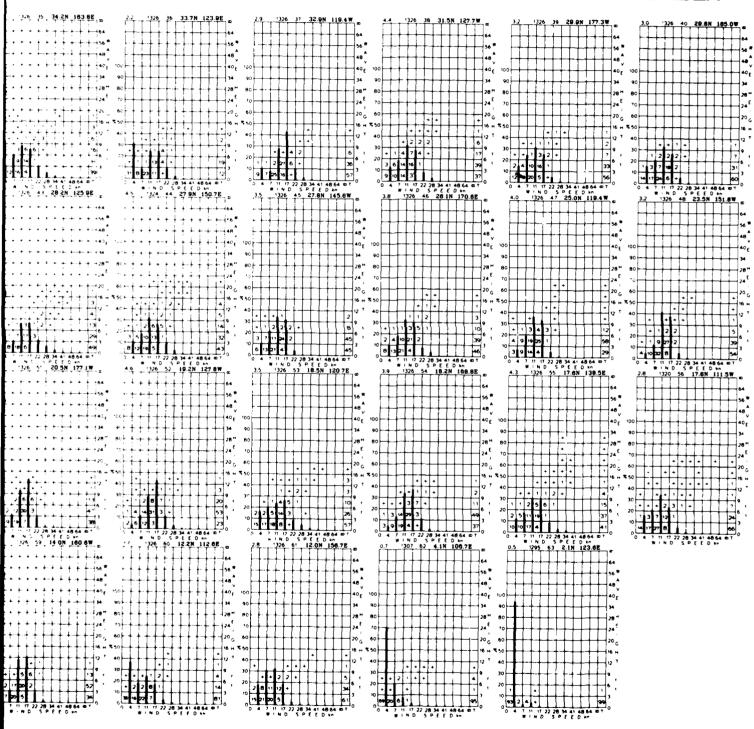


## WAVE HEIGHT AND WIND SPEED (Cont'd)



## ND SPEED (Cont'd)

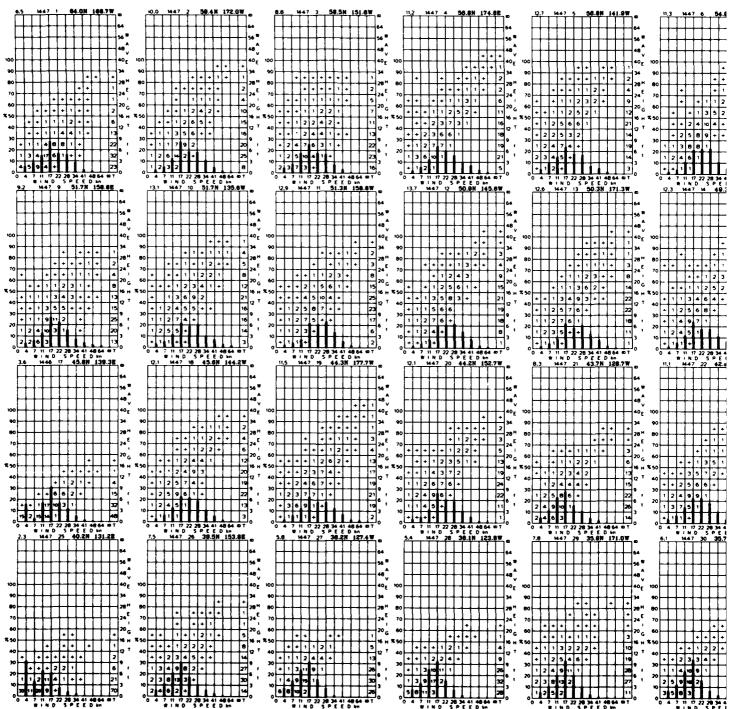
## **SEPTEMBER**



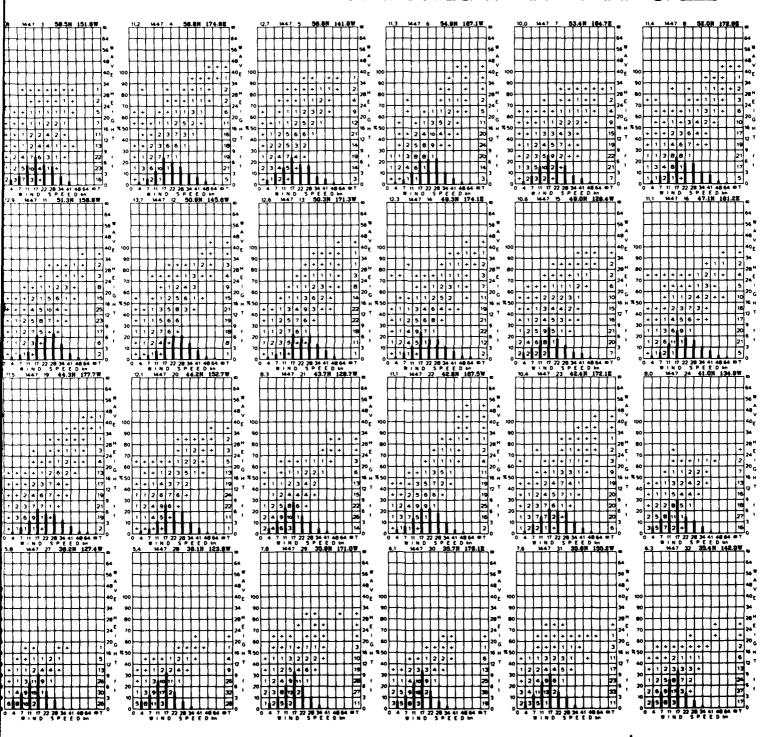
7

## OCTOBER

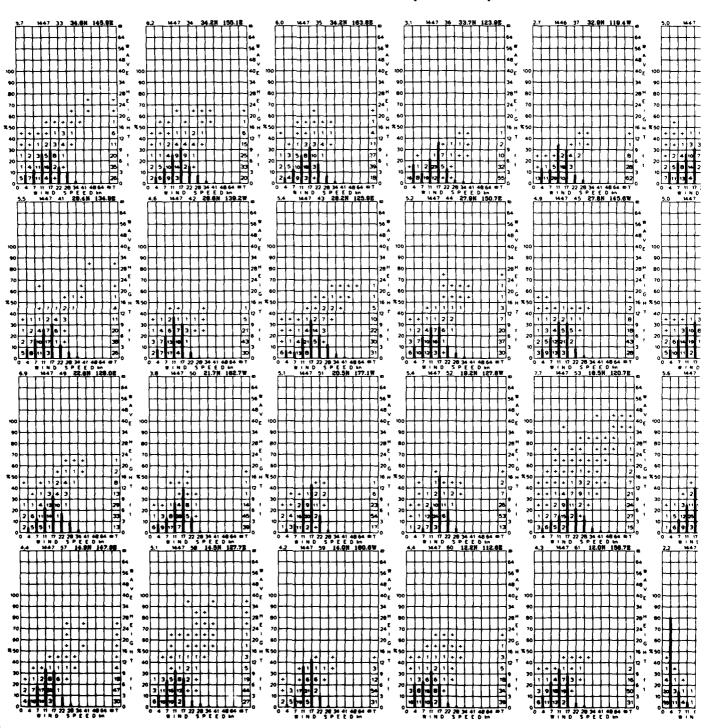
## WAVE HE



## WAVE HEIGHT AND WIND SPEED

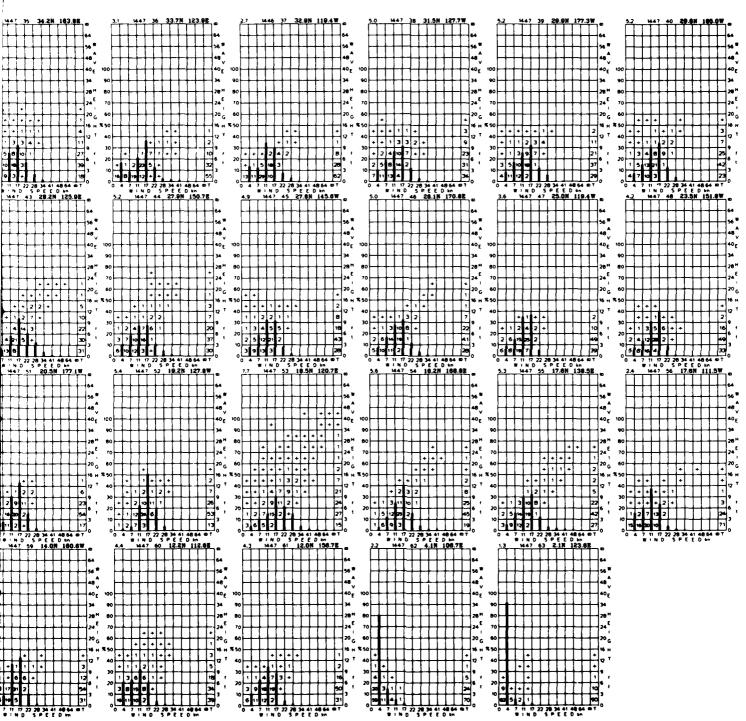


## WAVE HEIGHT AND WIND SPEED (Cont'd)



## ID SPEED (Cont'd)

## **OCTOBER**

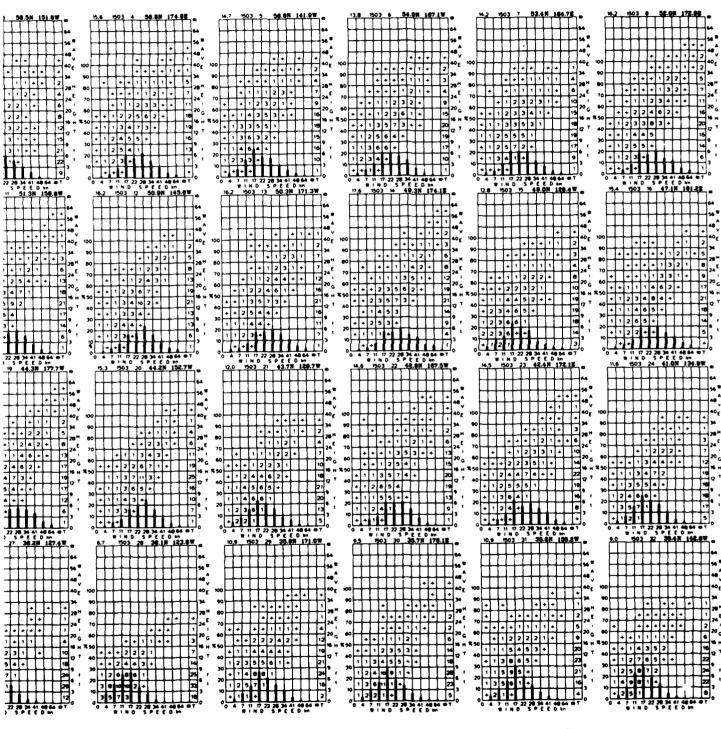


2

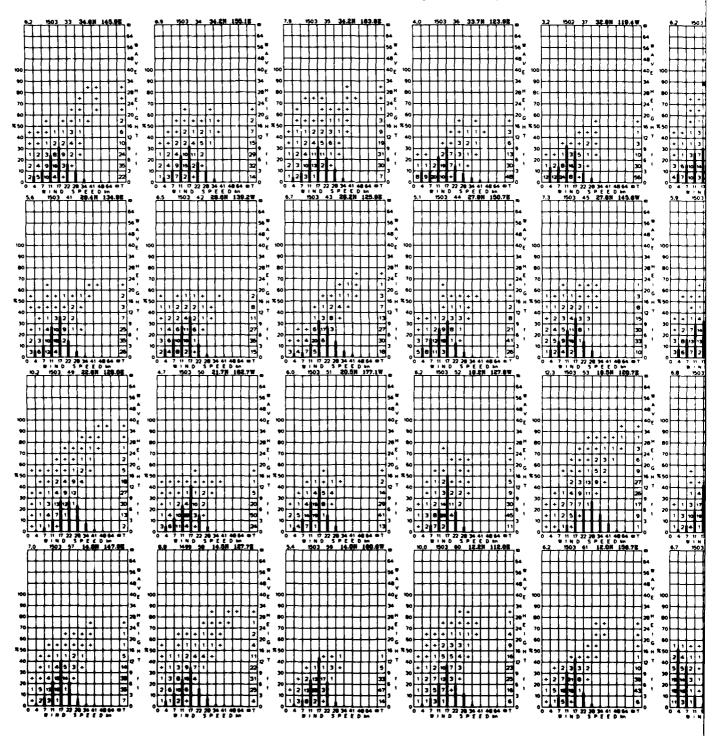
## **NOVEMBER** WAVE HEIGH

3 86

## WAVE HEIGHT AND WIND SPEED



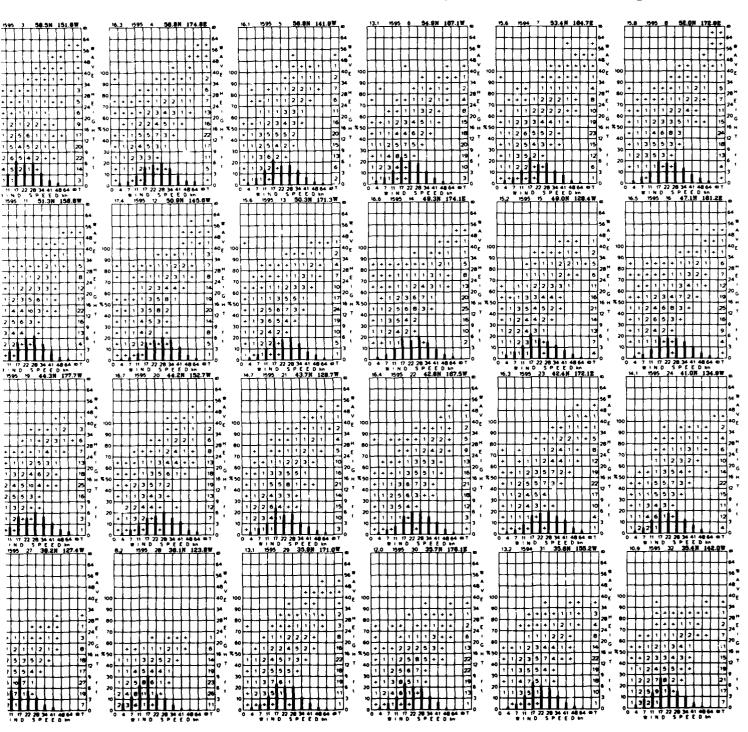
## WAVE HEIGHT AND WIND SPEED (Cont'd)



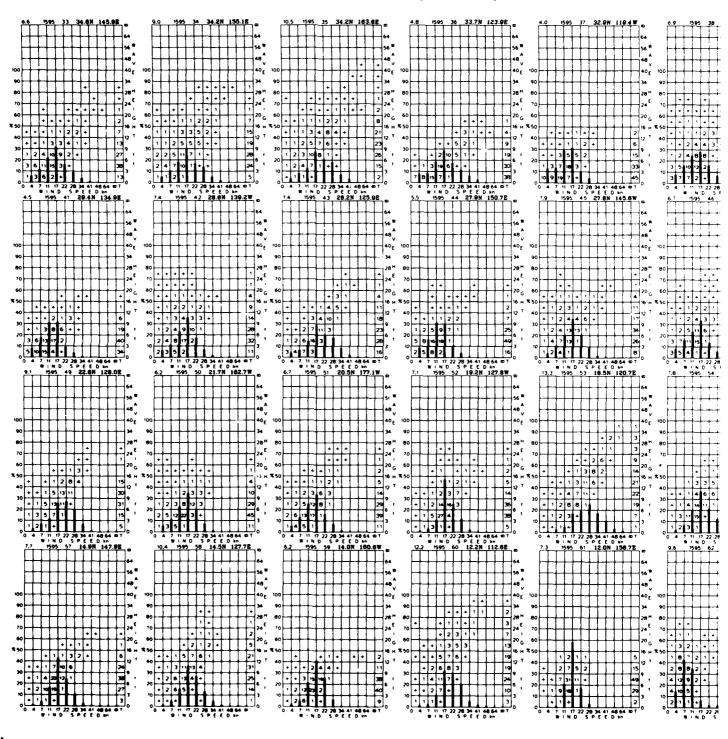
## ND SPEED (Cont'd) **NOVEMBER**

## WAVE HEIG **DECEMBER** 40 + 1 2 4 5 3 1 3 4 4 4 4 6 6 4 4 4 6 6 4 4 6 6 4 22 28 34 41 48 64 00 T S P E E D in 11 51.3N 158.8W

## WAVE HEIGHT AND WIND SPEED

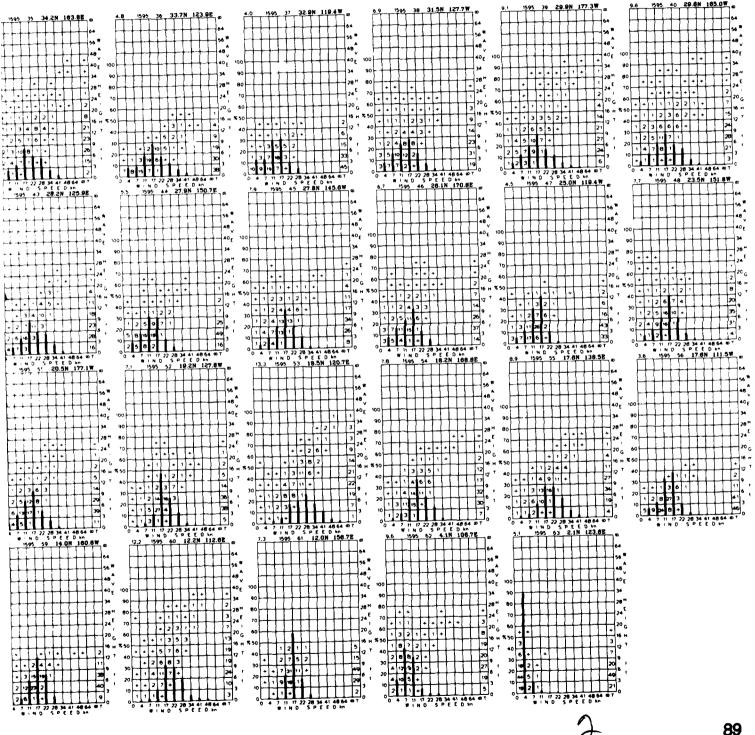


## WAVE HEIGHT AND WIND SPEED (Cont'd)



## O SPEED (Cont'd)

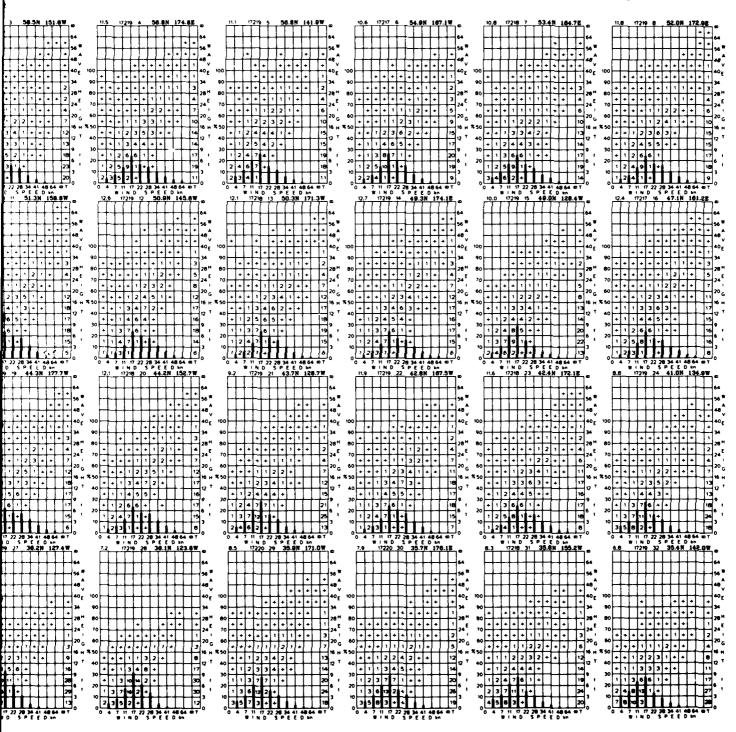
## **DECEMBER**



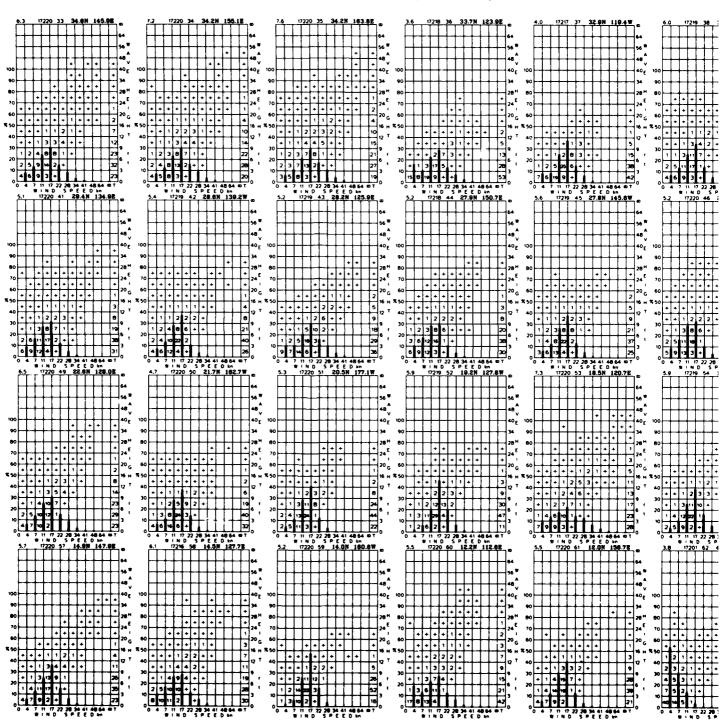
## **ANNUAL** WAVE HEK

g 80

## WAVE HEIGHT AND WIND SPEED



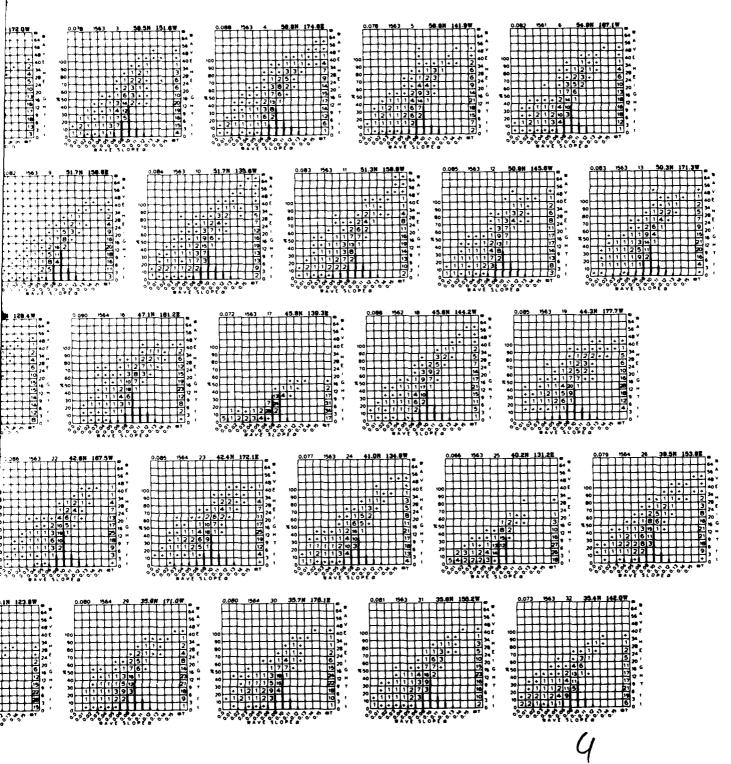
## WAVE HEIGHT AND WIND SPEED (Cont'd)



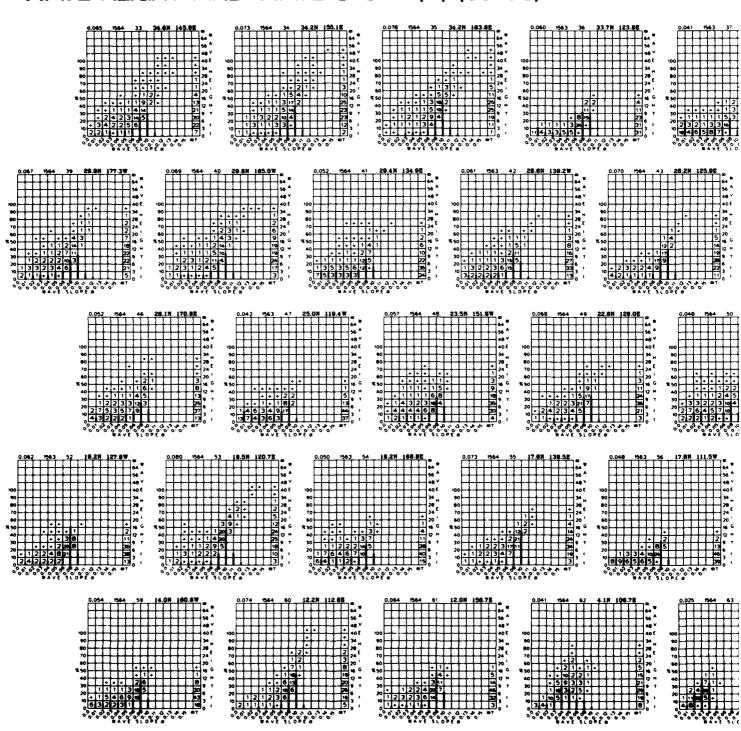
# ND SPEED (Cont'd) **ANNUAL**

## WAVE HEIGHT **JANUARY**

## WAVE HEIGHT AND WAVE SLOPE ( $\alpha$ )

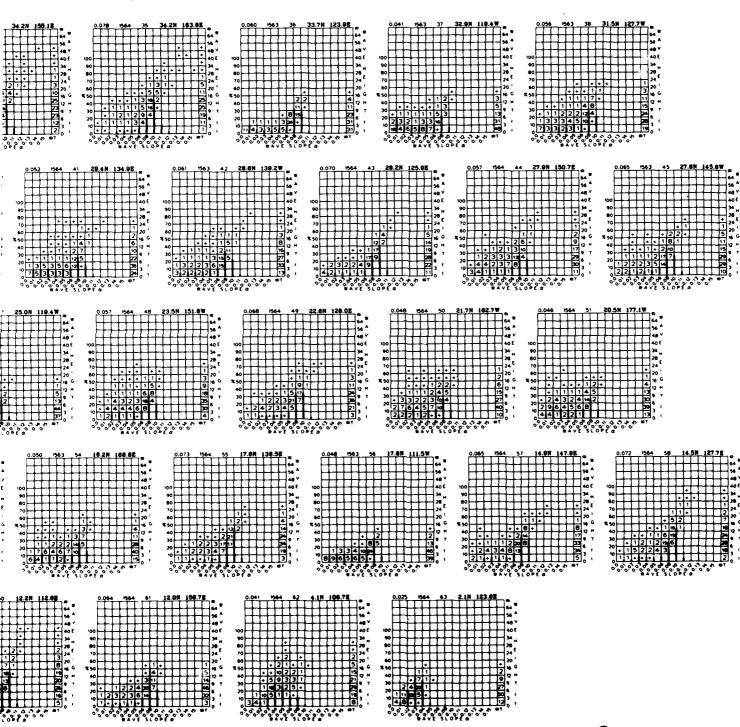


## WAVE HEIGHT AND WAVE SLOPE ( $\alpha$ ) (Cont'd)



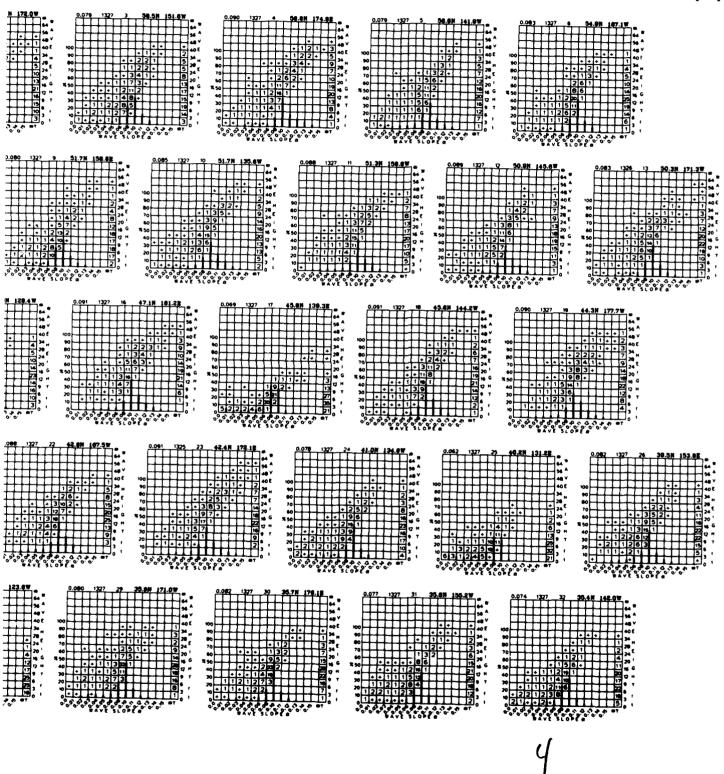
## WE SLOPE ( $\alpha$ ) (Cont'd)

## **JANUARY**

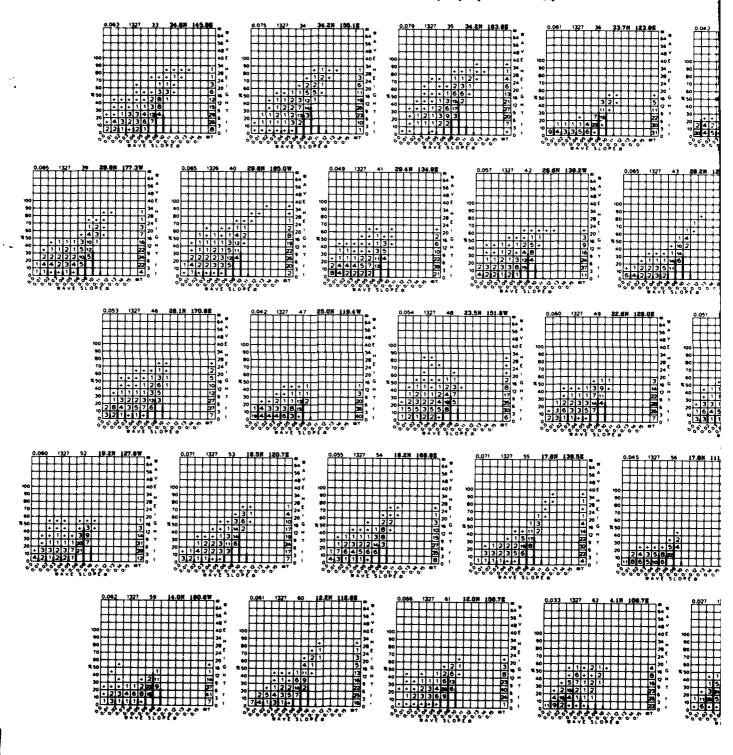


## **FEBRUARY** WAVE HEIGH 0.079 1327 15 69.0N 128.4 W 6 W 100 128.4 W 6

## WAVE HEIGHT AND WAVE SLOPE ( $\alpha$ )

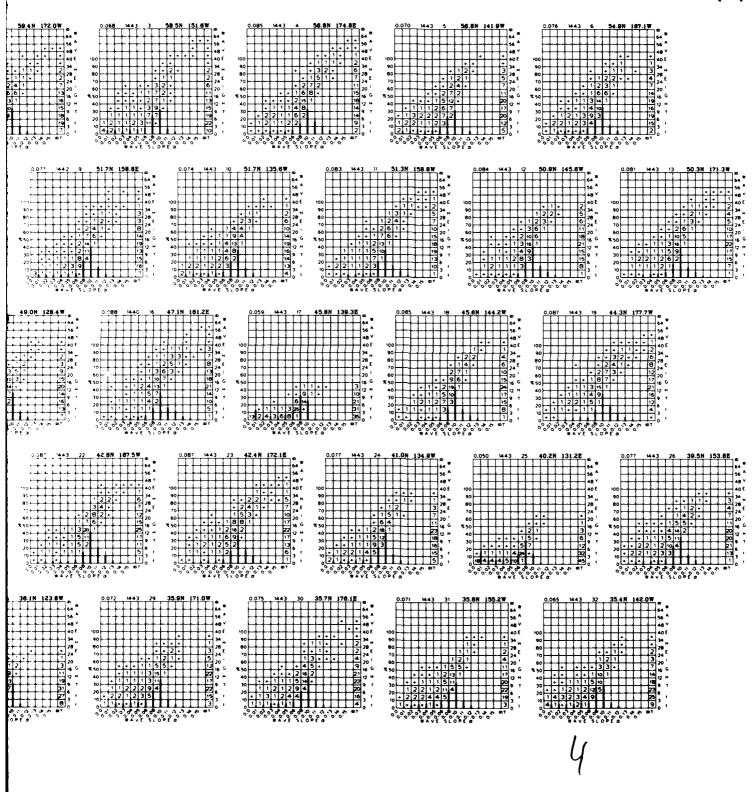


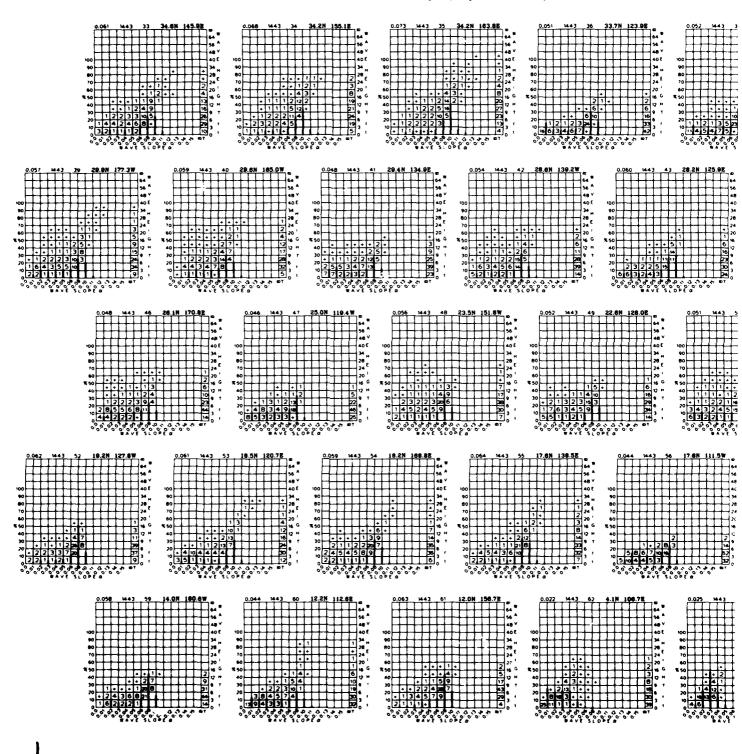
## WAVE HEIGHT AND WAVE SLOPE ( $\alpha$ ) (Cont'd)



# **FEBRUARY** VE SLOPE ( $\alpha$ ) (Cont'd)

## **MARCH** WAVE HEIGH



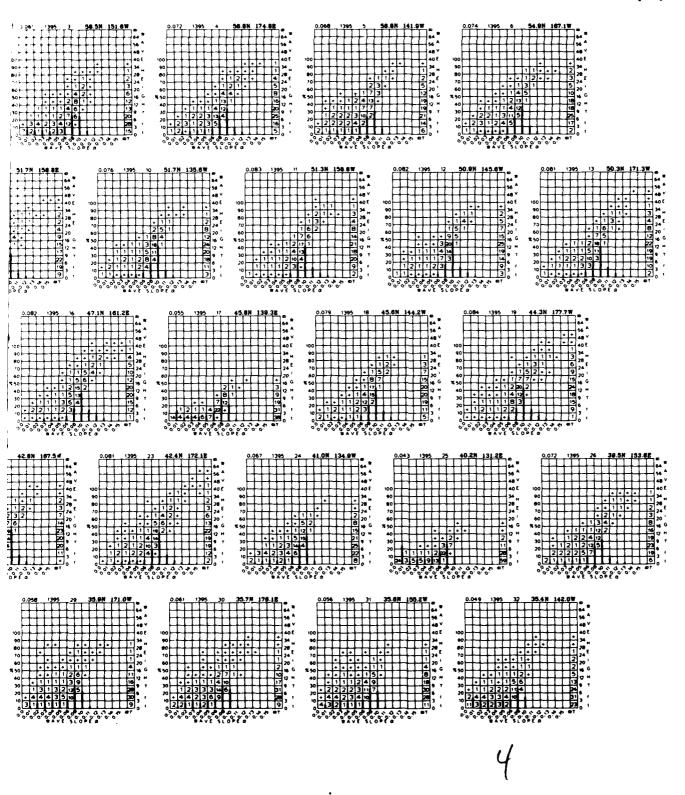


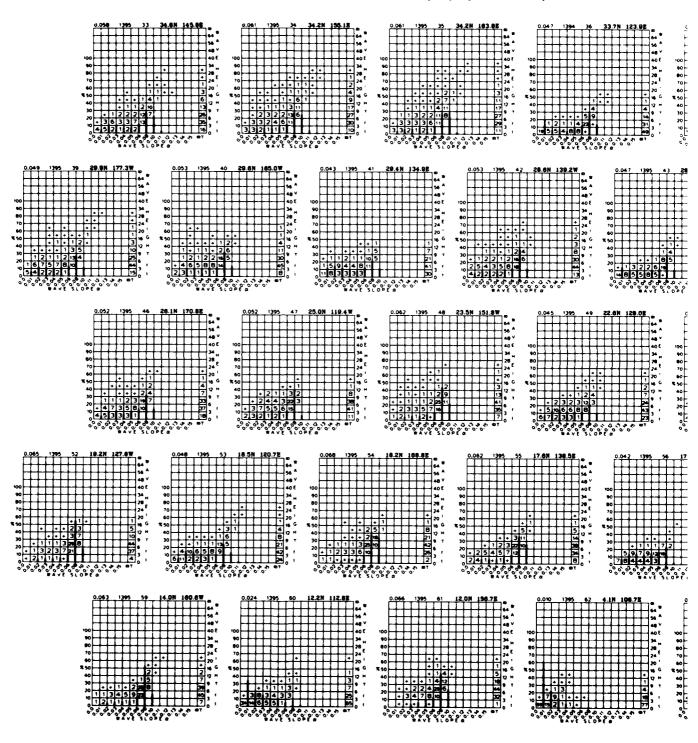
## **MARCH** VE SLOPE ( $\alpha$ ) (Cont'd)

97

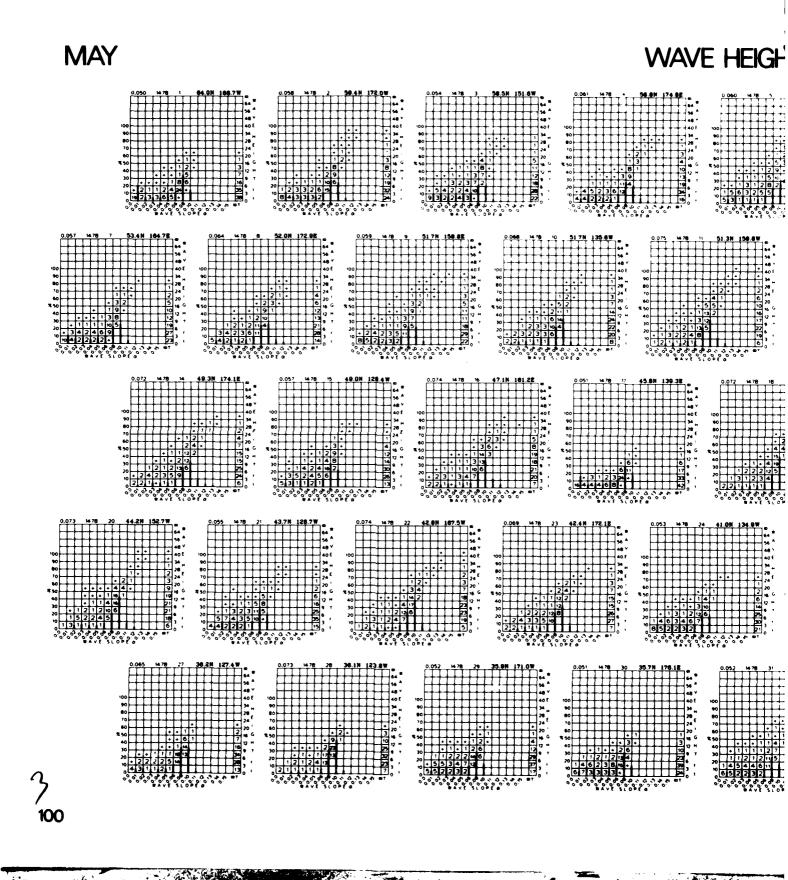
### WAVE HEIC **APRIL**

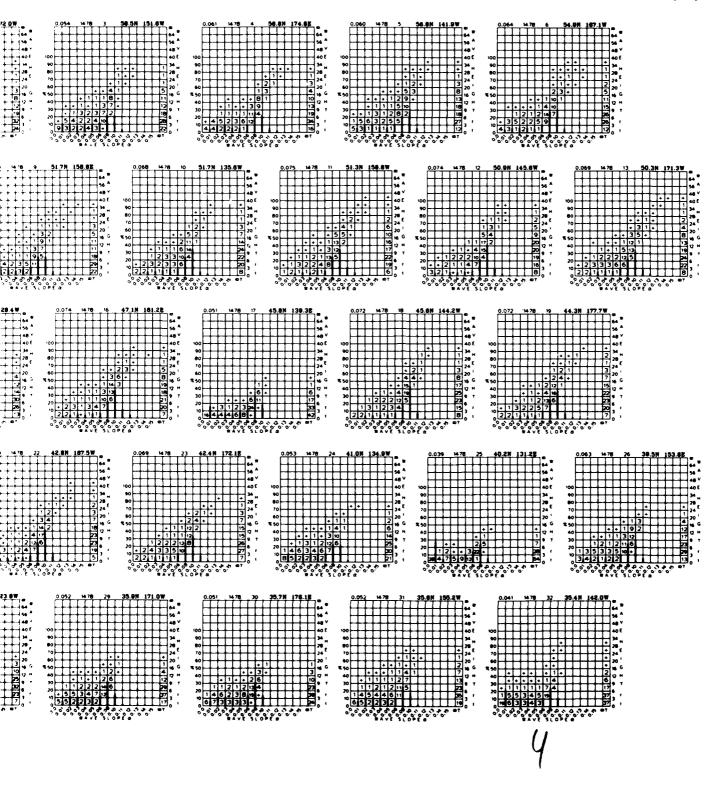
7 7 **98** 

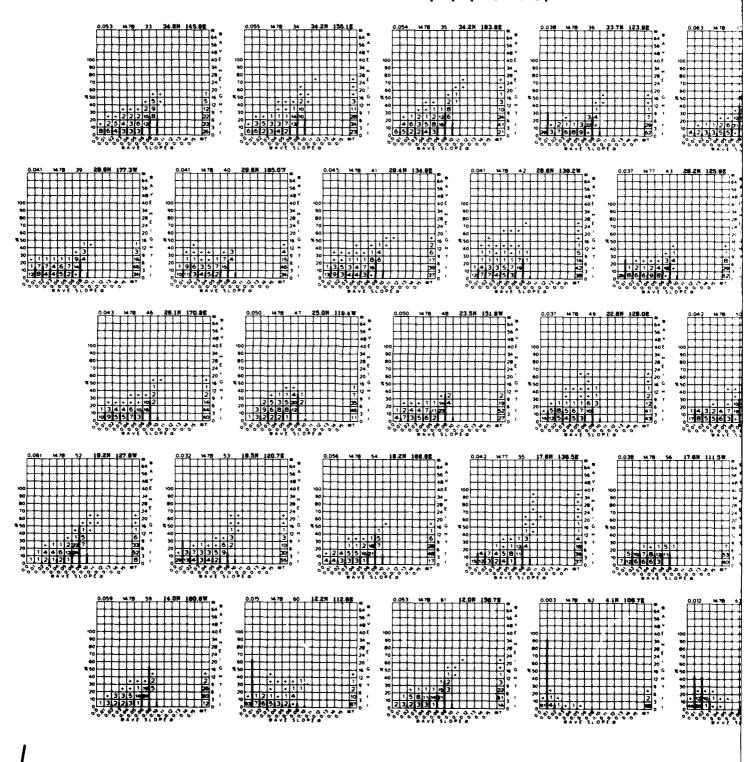




## **APRIL** /E SLOPE ( $\alpha$ ) (Cont'd)

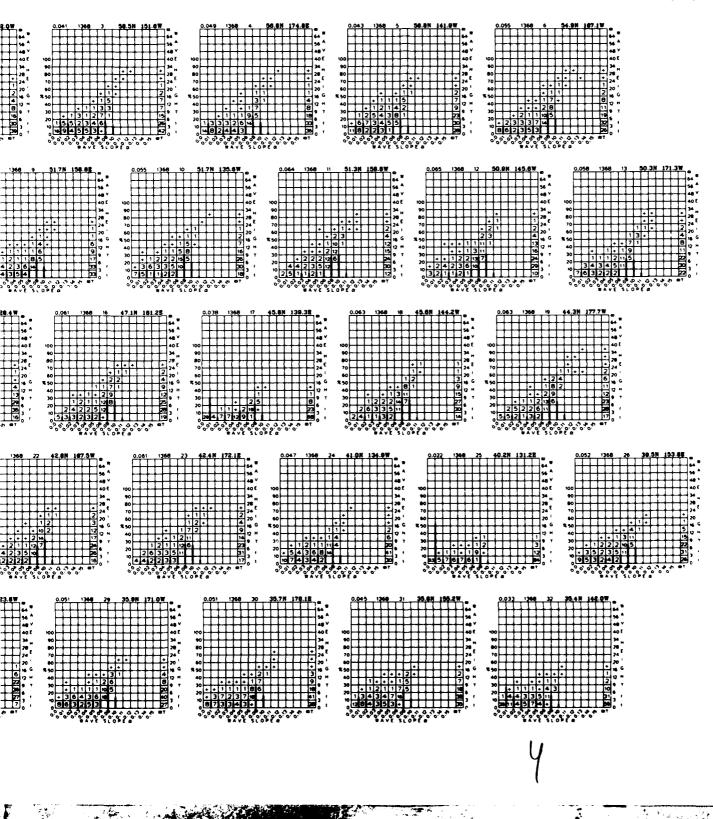


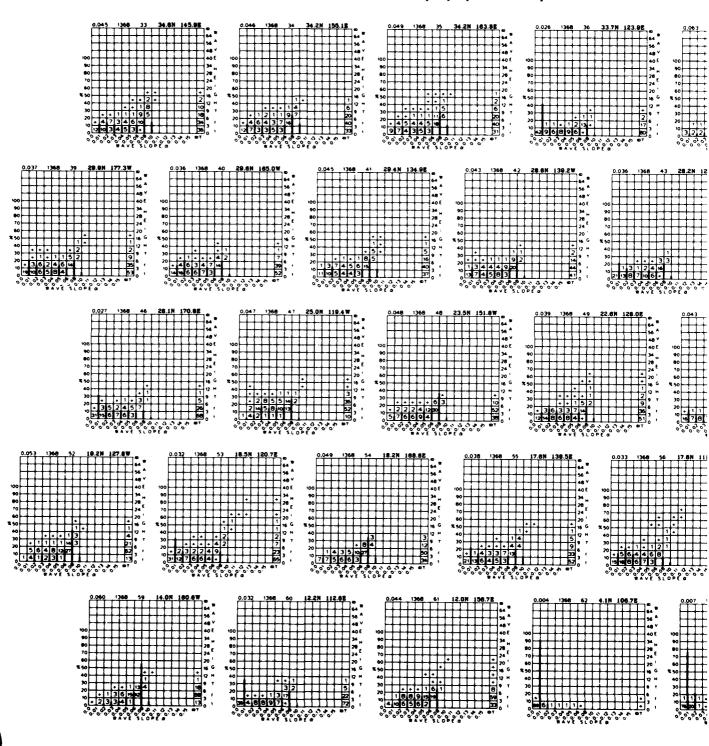




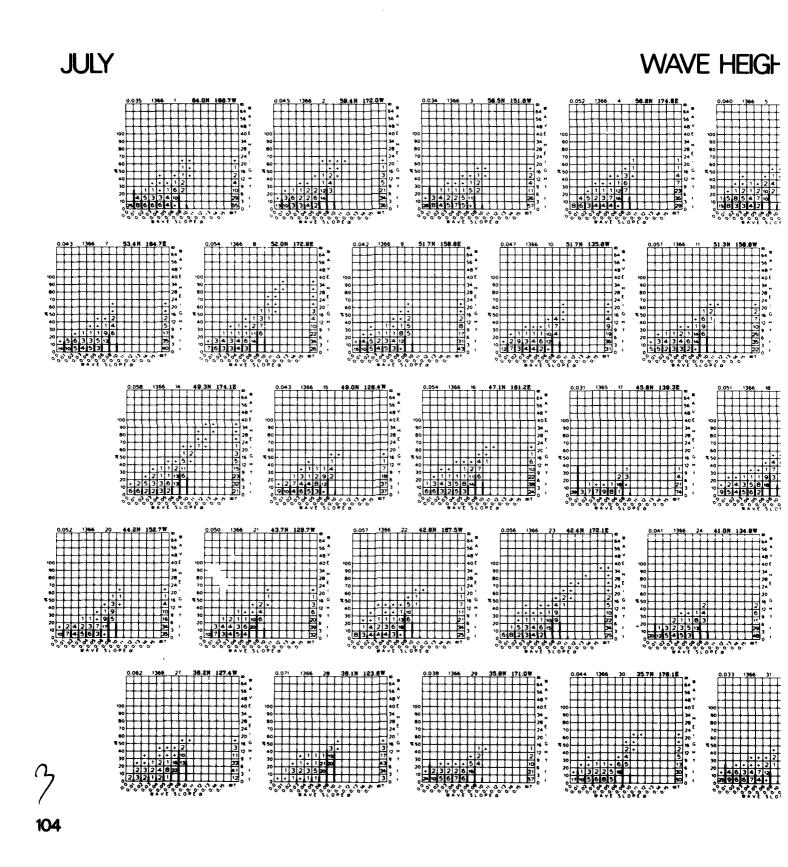
# VE SLOPE ( $\alpha$ ) (Cont'd) MAY

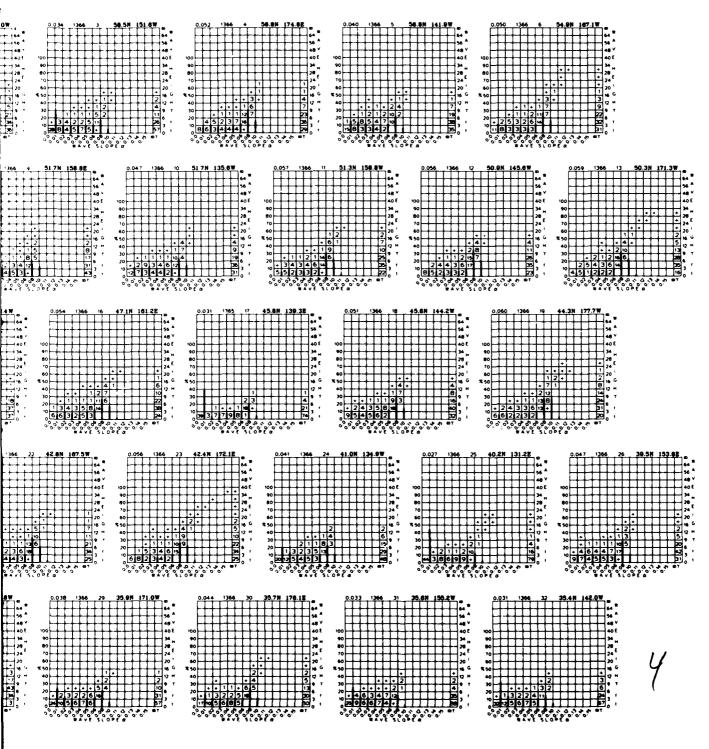
WAVE HEIGH JUNE 

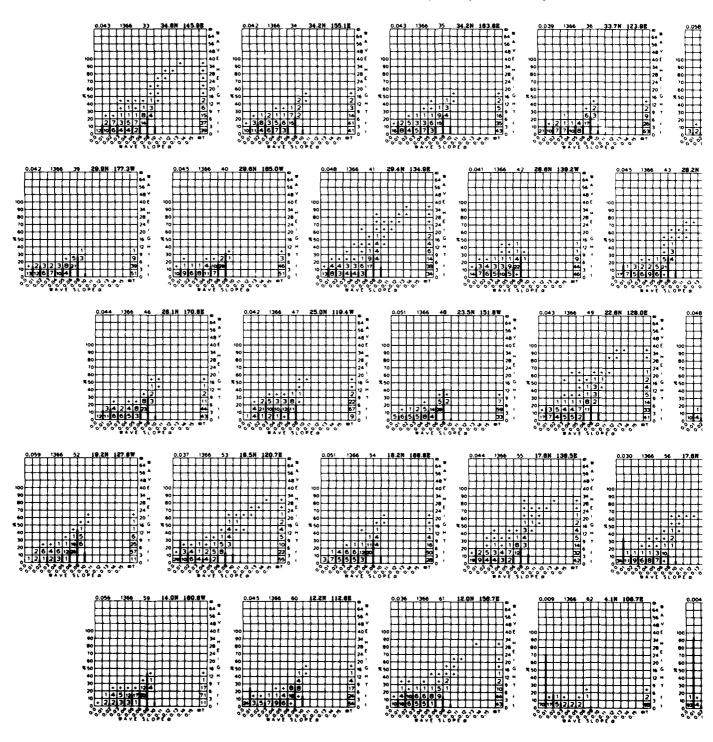




# AVE SLOPE (lpha) (Cont'd) JUNE



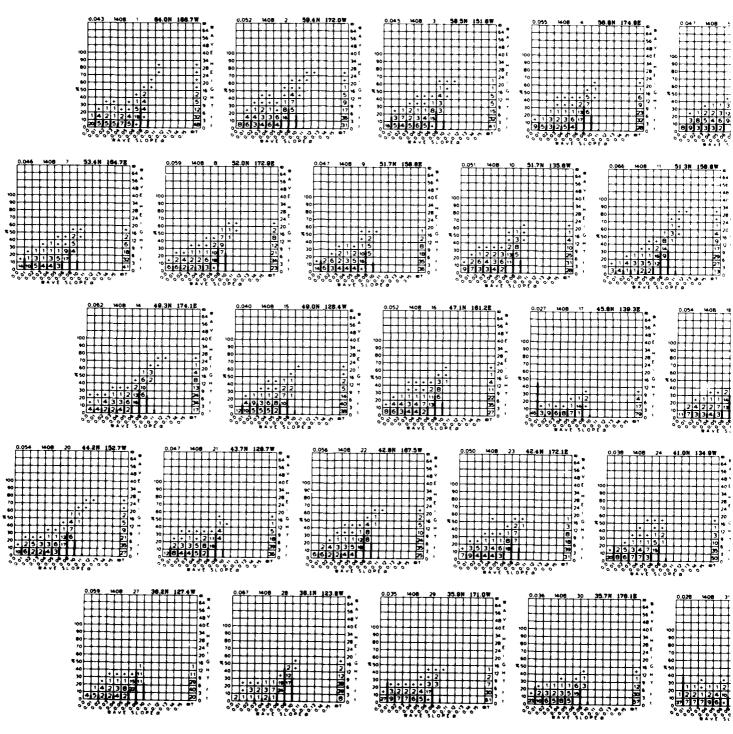




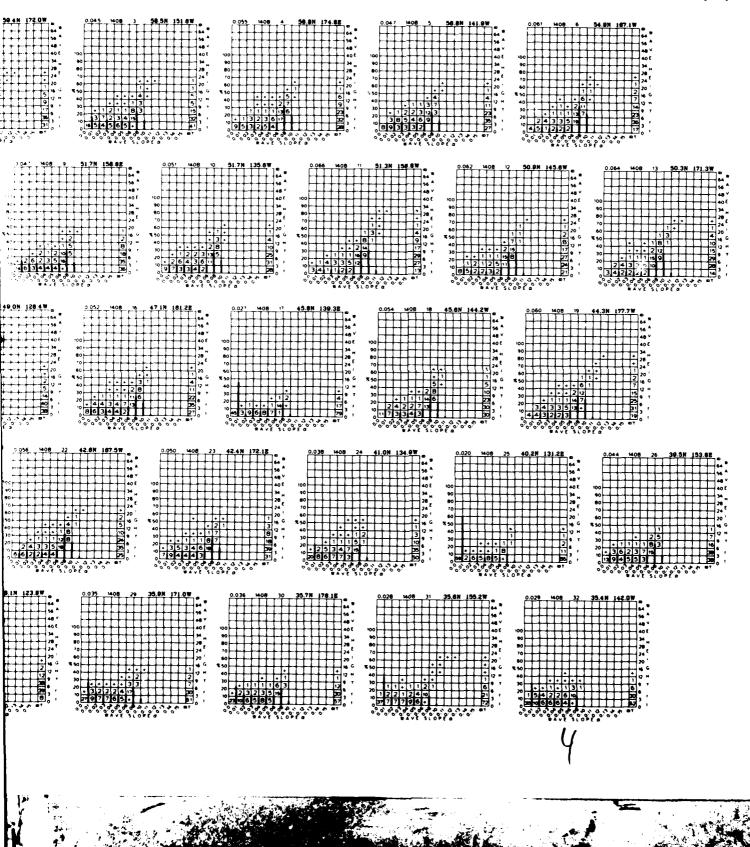
# JULY WE SLOPE ( $\alpha$ ) (Cont'd)

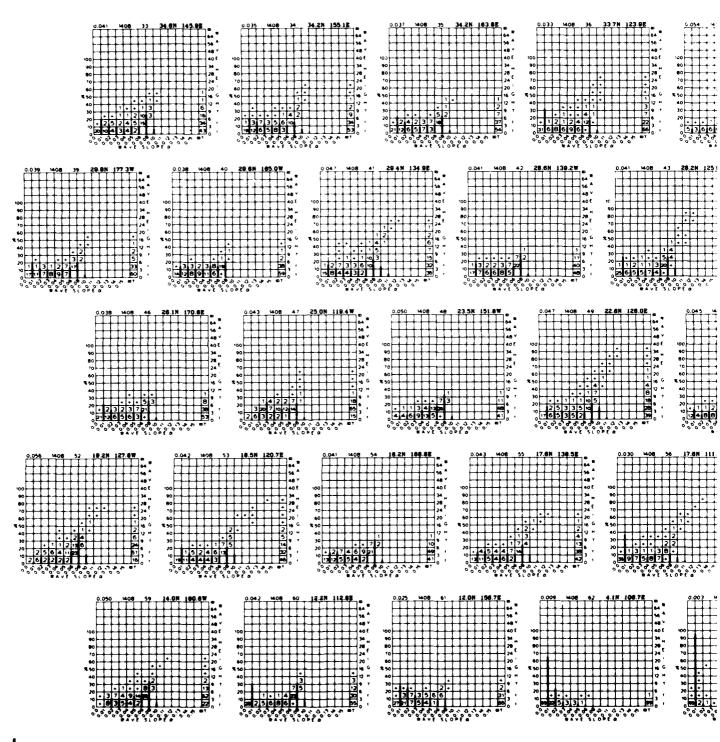
### **AUGUST**

### WAVE HEIG

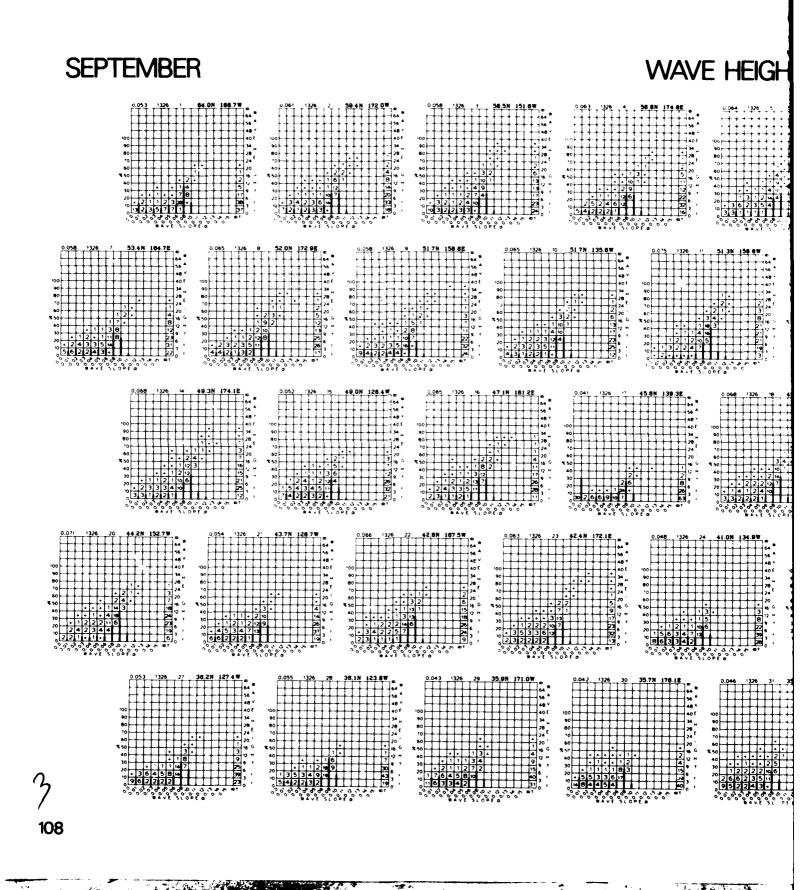


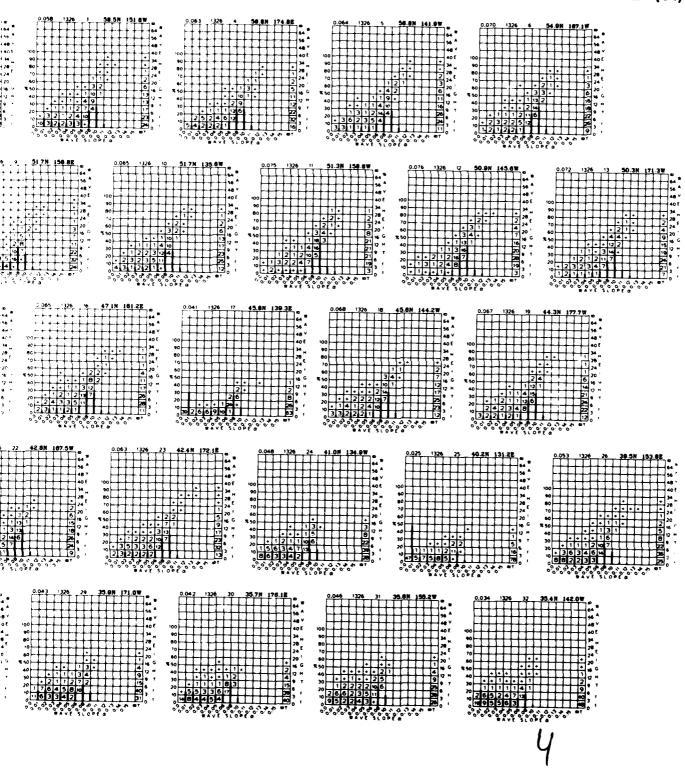
ر 106

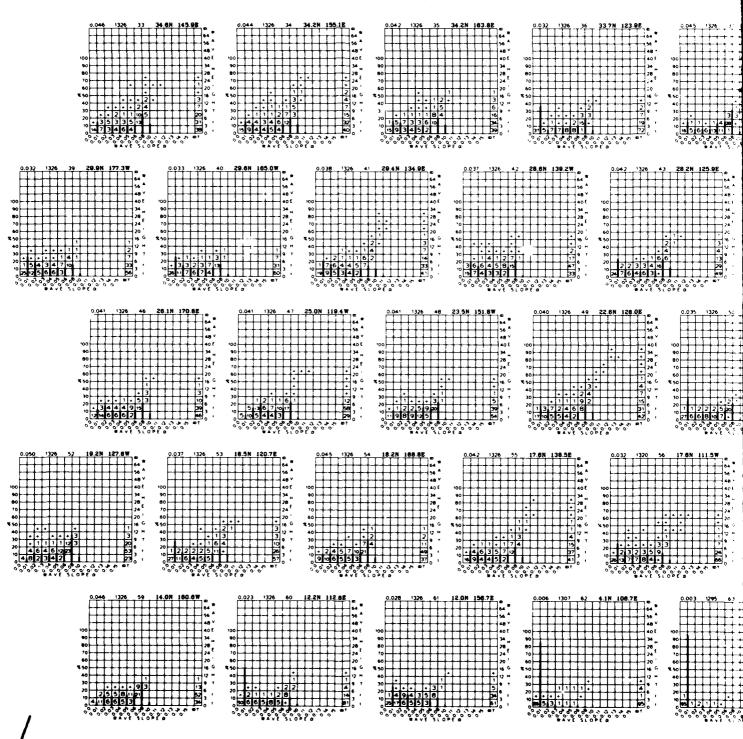




## WE SLOPE ( $\alpha$ ) (Cont'd) **AUGUST** 107

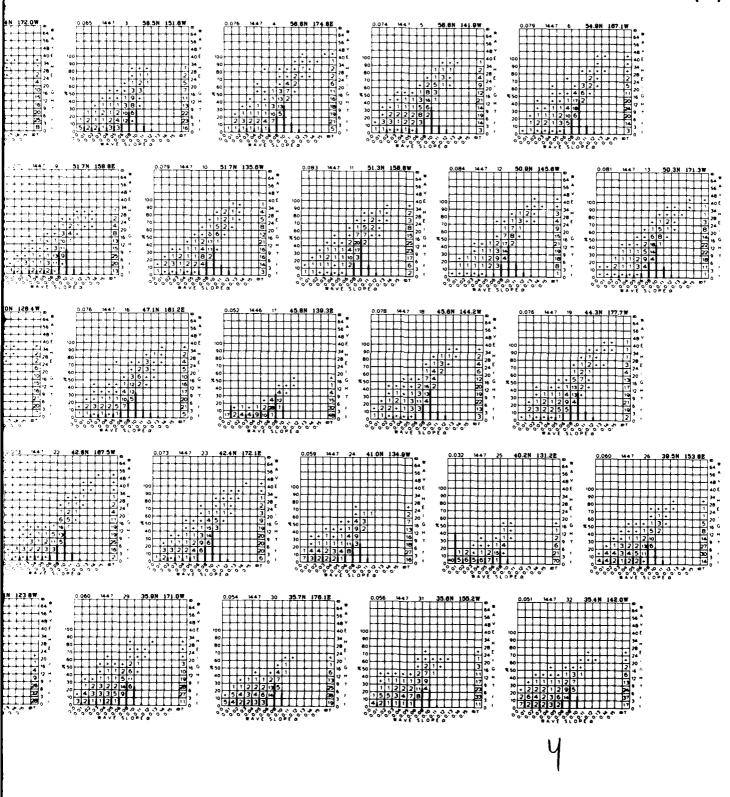


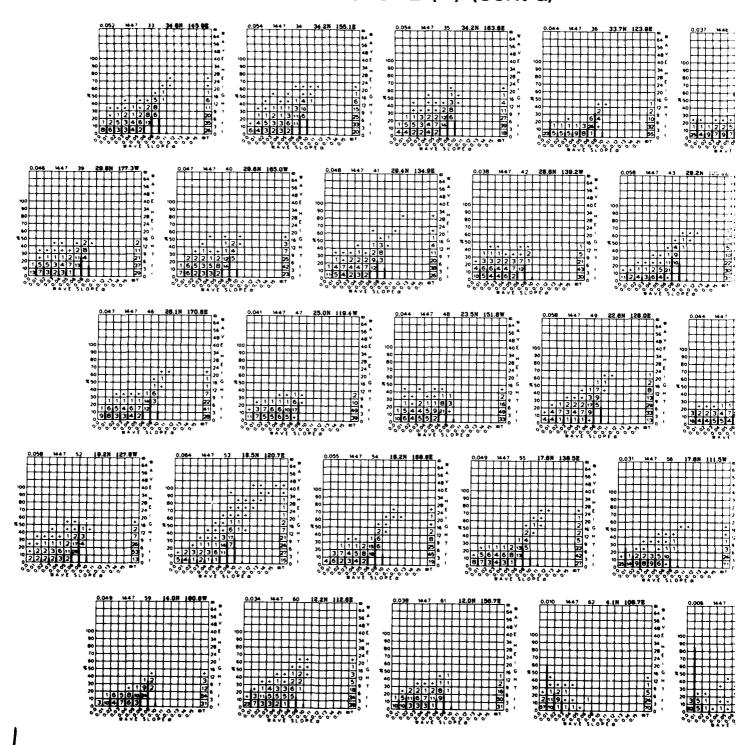




## SEPTEMBER ) (Cont'd) 109

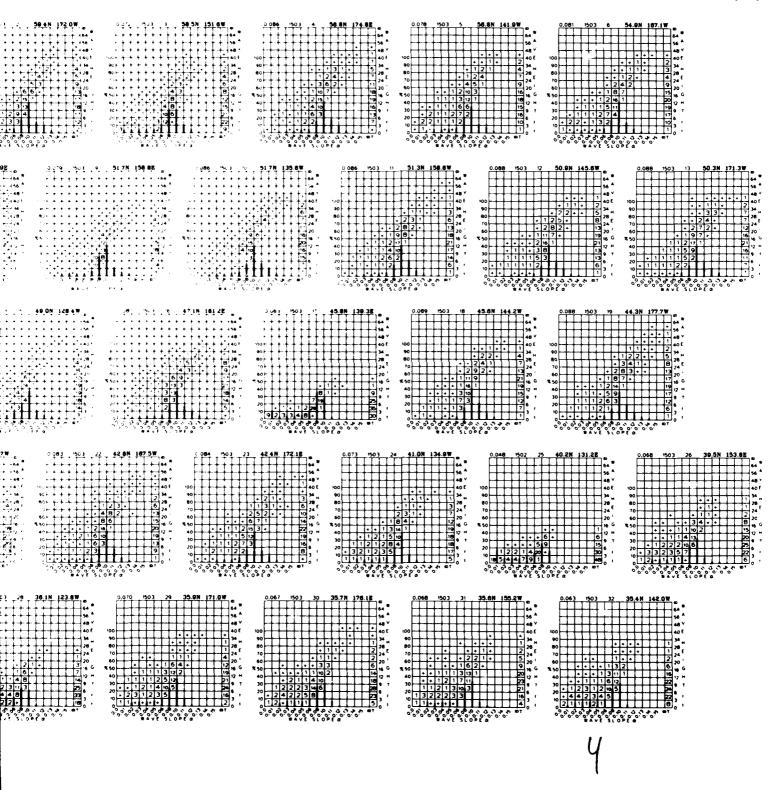
### WAVE HEIG **OCTOBER**

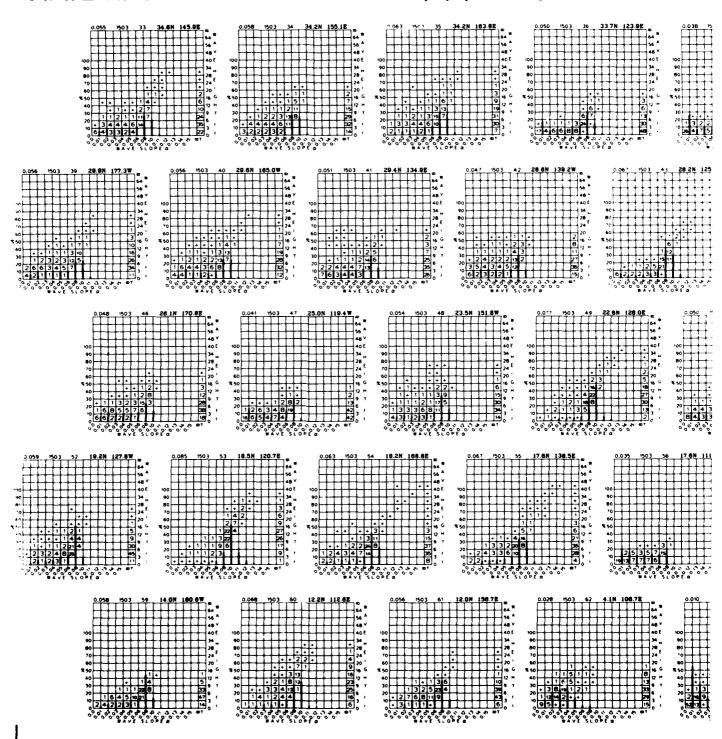




# WE SLOPE (lpha) (Cont'd) **OCTOBER** 111

### **NOVEMBER** WAVE HEK 0.067 503 70 44.2N 152.7W 6 7 64.2N 152.7W 6 8 9 64.2N 152.7W 6 9 7 64.2N 152.7W

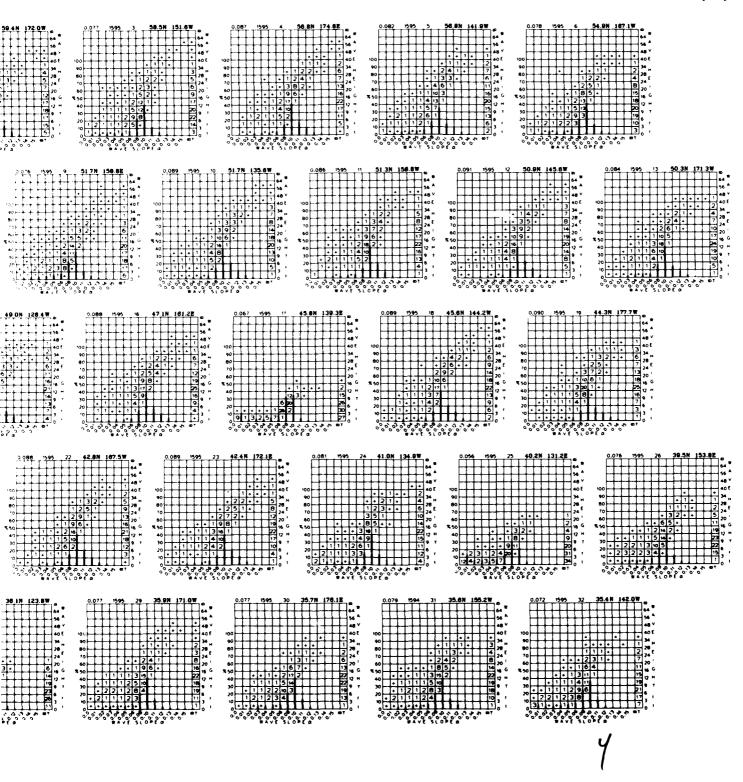




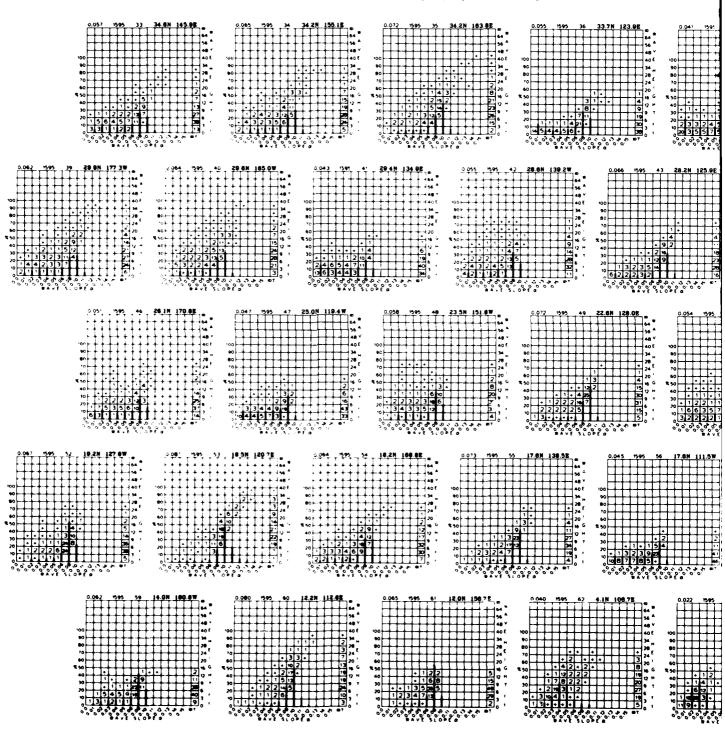
### **NOVEMBER** WE SLOPE ( $\alpha$ ) (Cont'd)

### **DECEMBER** WAVE HEIGH 0.076 1595 9 31.7N 136.6E

### WAVE HEIGHT AND WAVE SLOPE ( $\alpha$ )



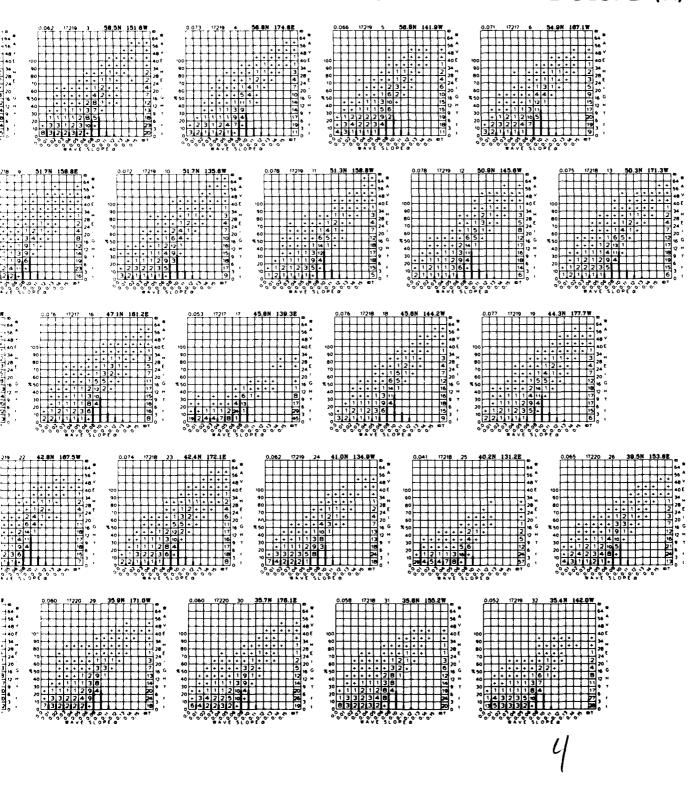
### WAVE HEIGHT AND WAVE SLOPE ( $\alpha$ ) (Cont'd)



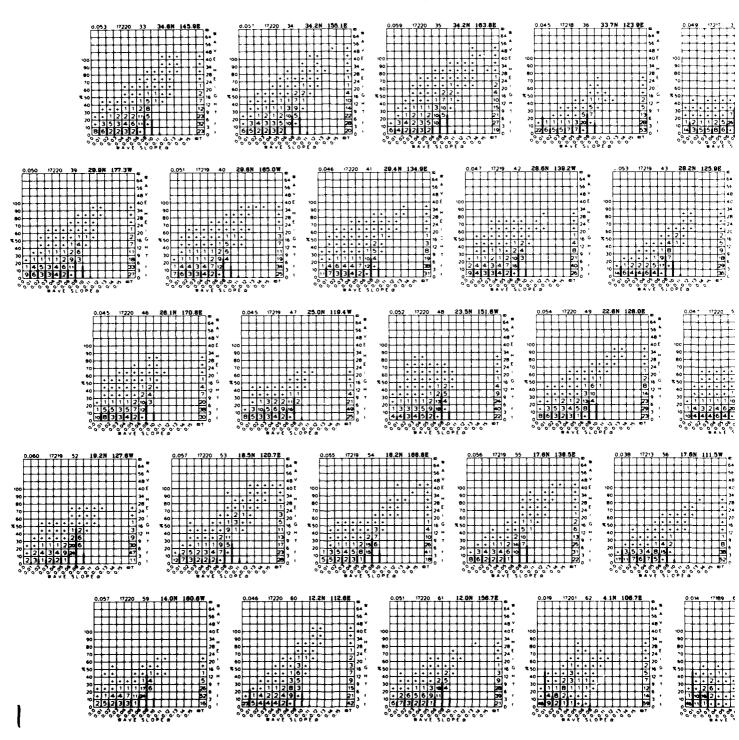
## 'E SLOPE (lpha) (Cont'd) **DECEMBER**

### **ANNUAL** WAVE HEIGH

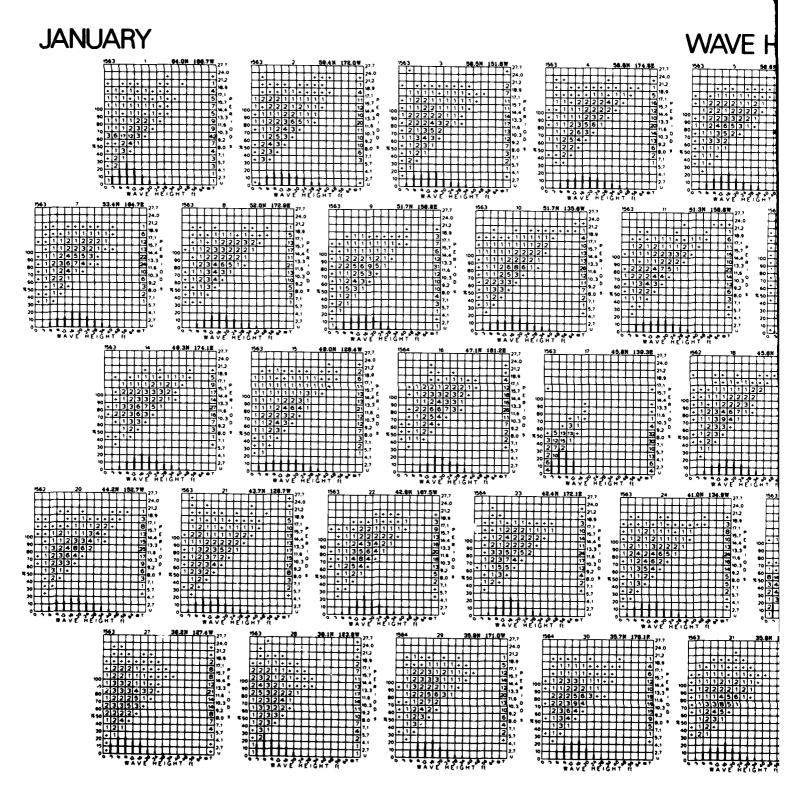
### WAVE HEIGHT AND WAVE SLOPE ( $\alpha$ )



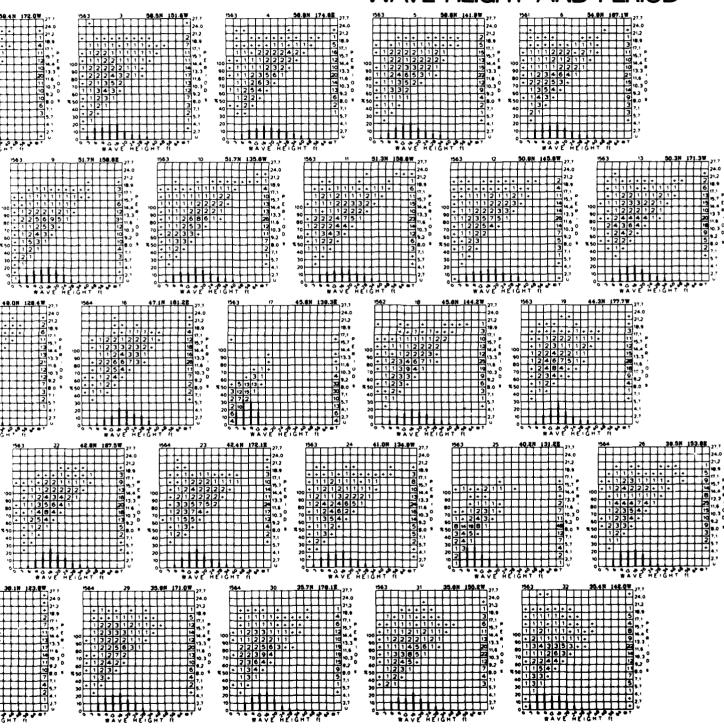
### WAVE HEIGHT AND WAVE SLOPE ( $\alpha$ ) (Cont'd)

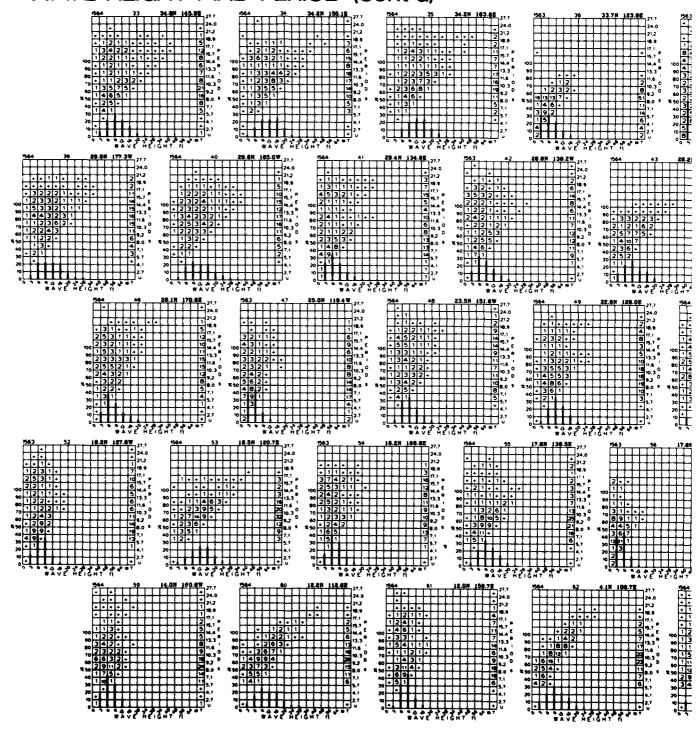


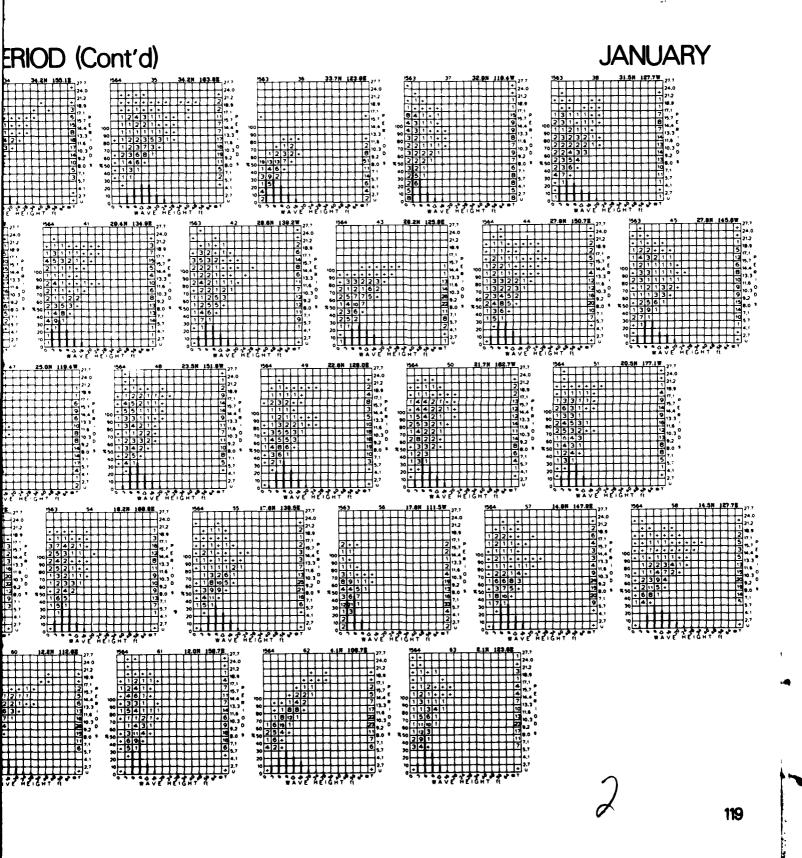
## ANNUAL WE SLOPE ( $\alpha$ ) (Cont'd)

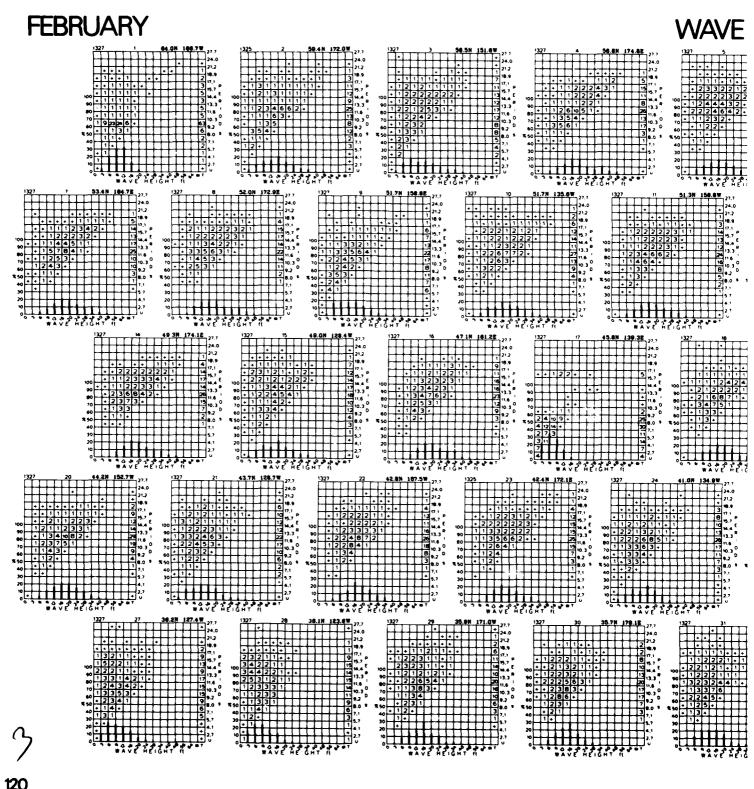


### WAVE HEIGHT AND PERIOD

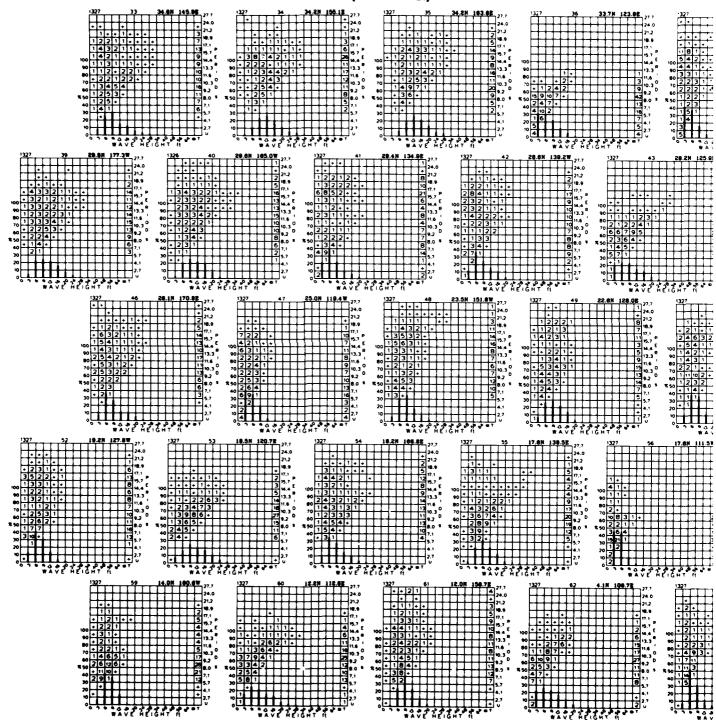




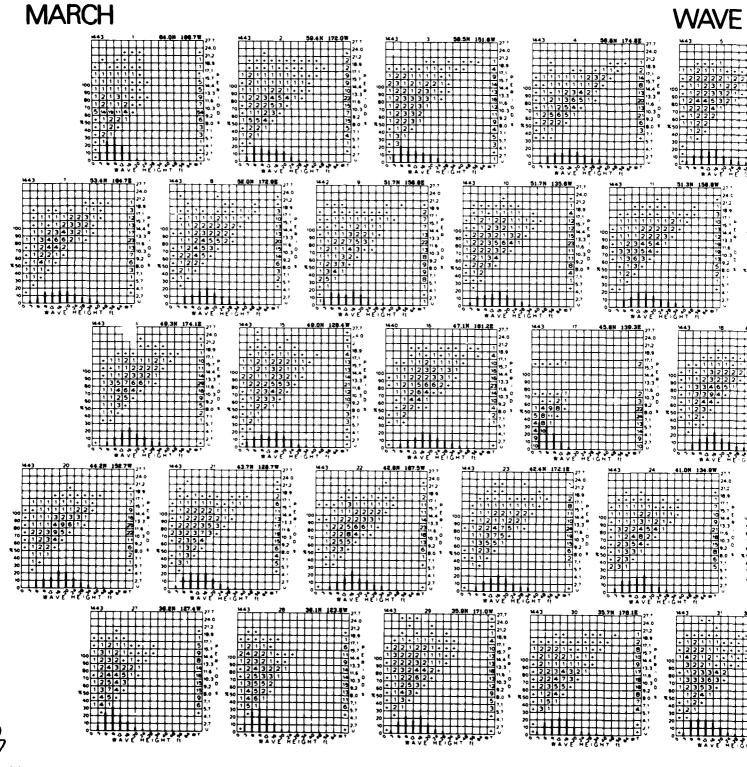


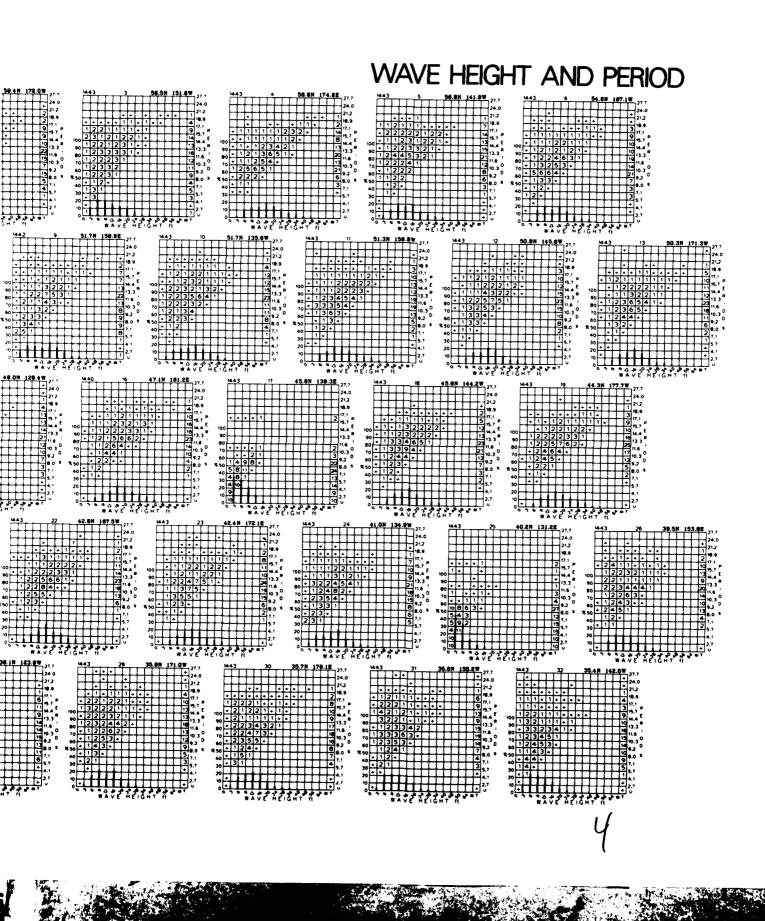


# WAVE HEIGHT AND PERIOD WAVE HEIGHT AND PERIOD

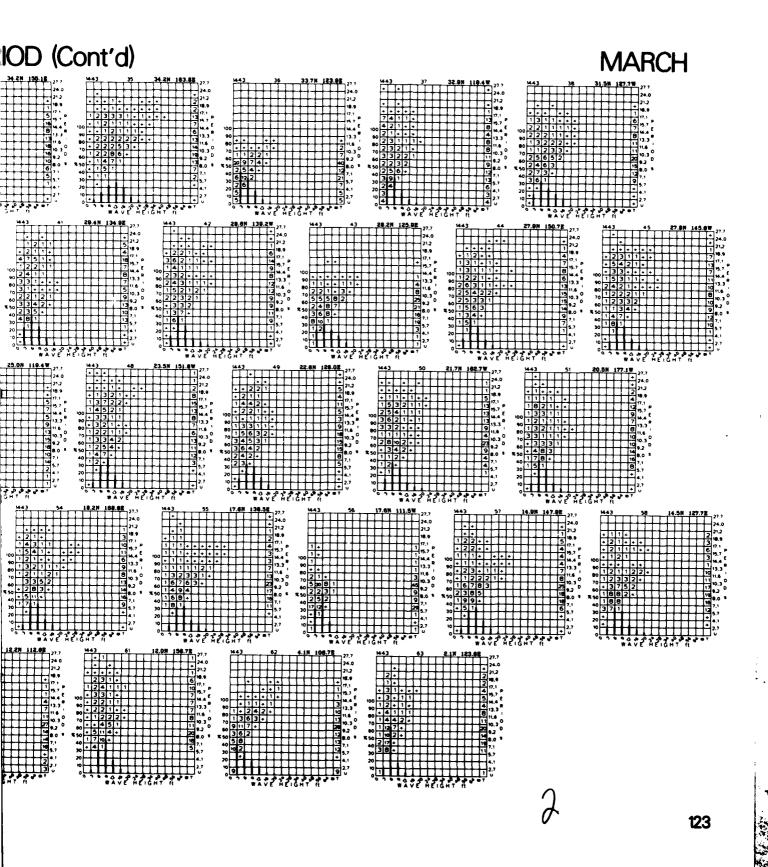


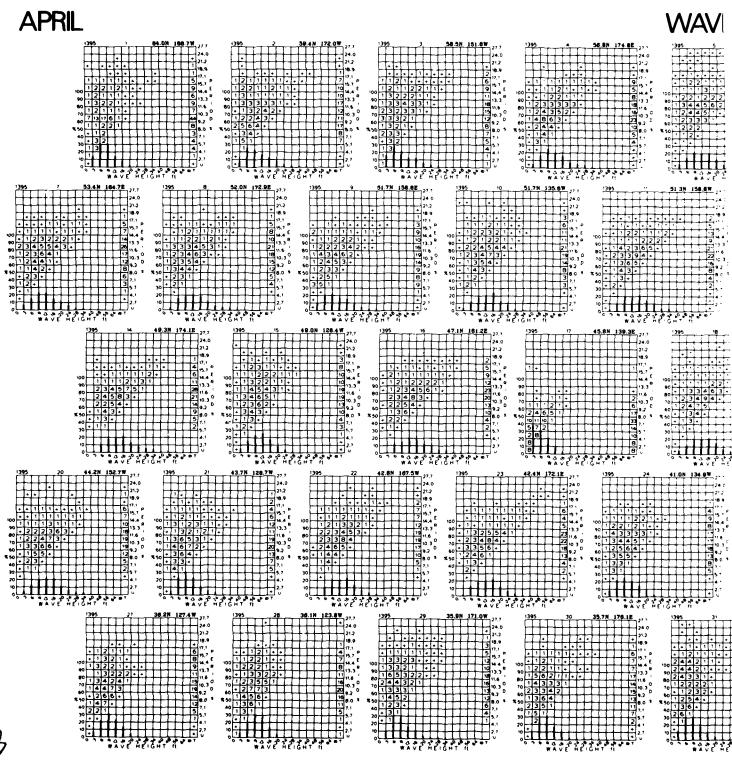
**FEBRUARY** OD (Cont'd) 121



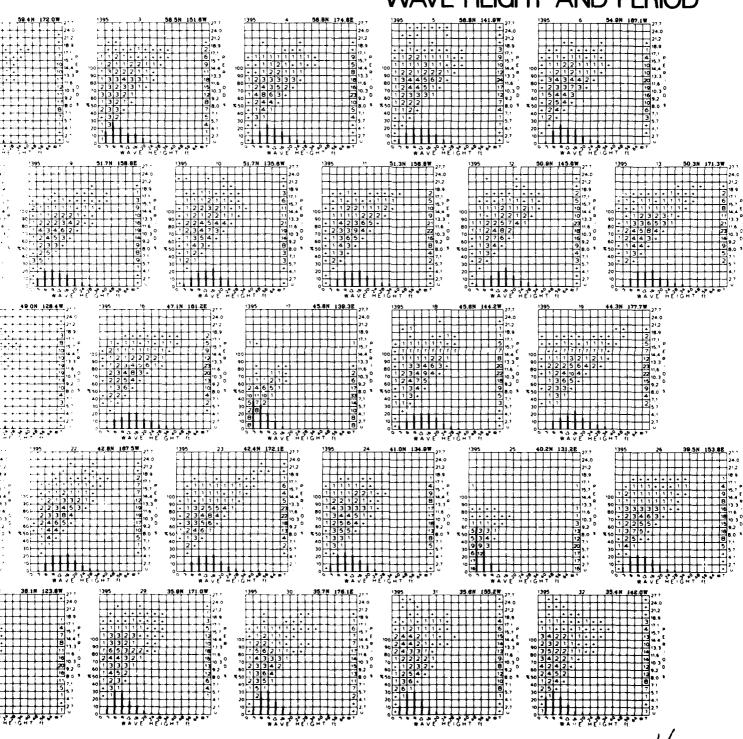


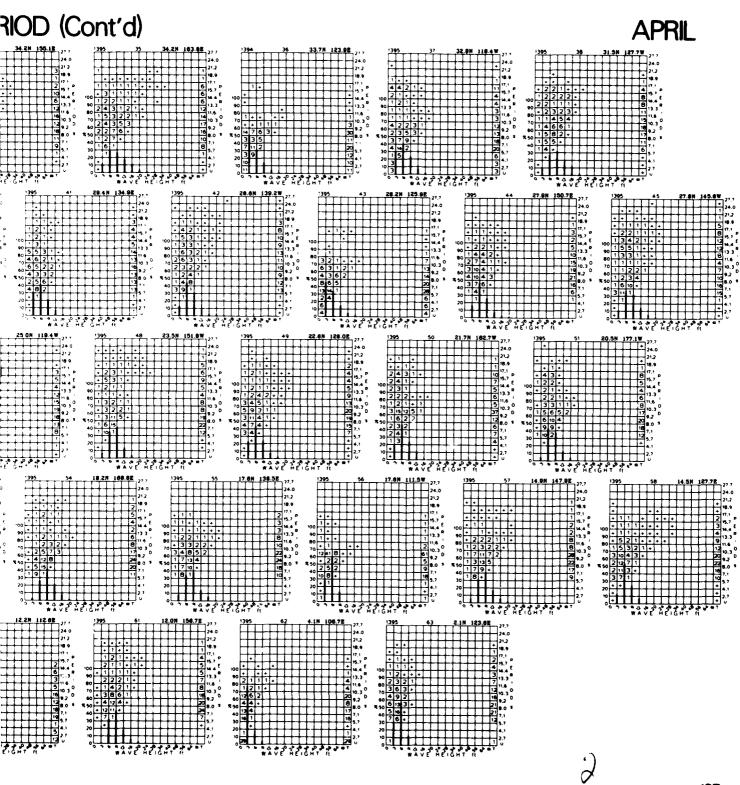
## WAVE HEIGHT AND PERIOD (Cont'd) 19.2 19.2N 127.6W 120.7E 120.7

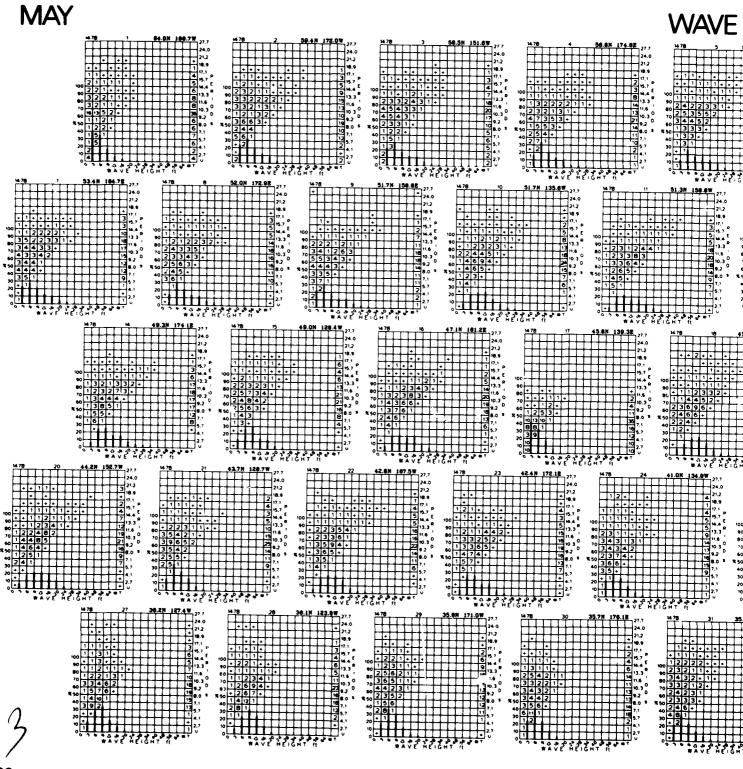




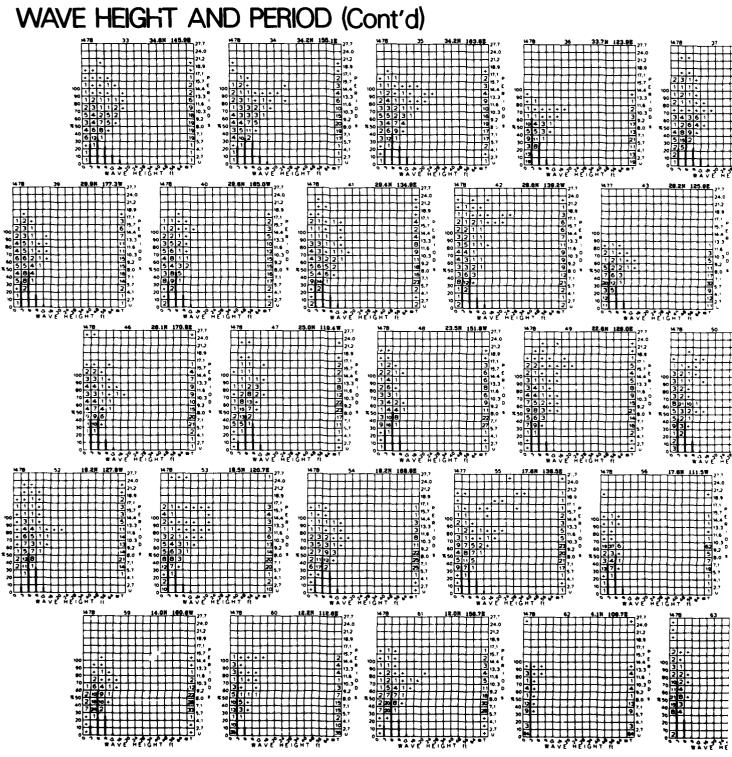
### WAVE HEIGHT AND PERIOD

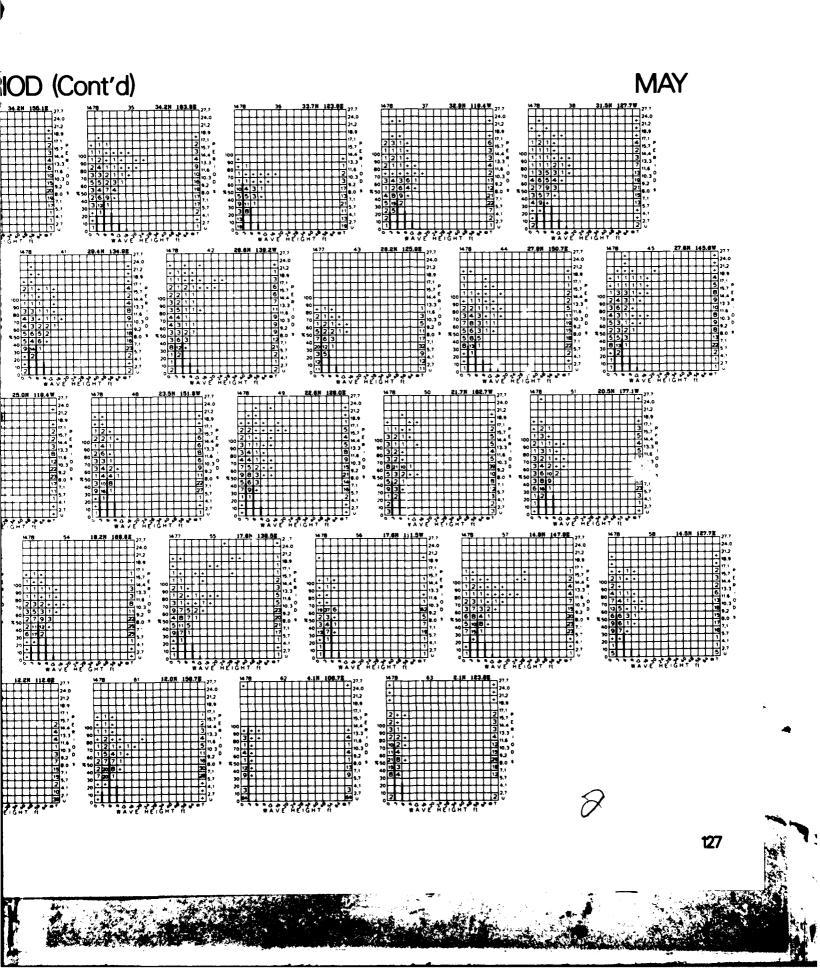


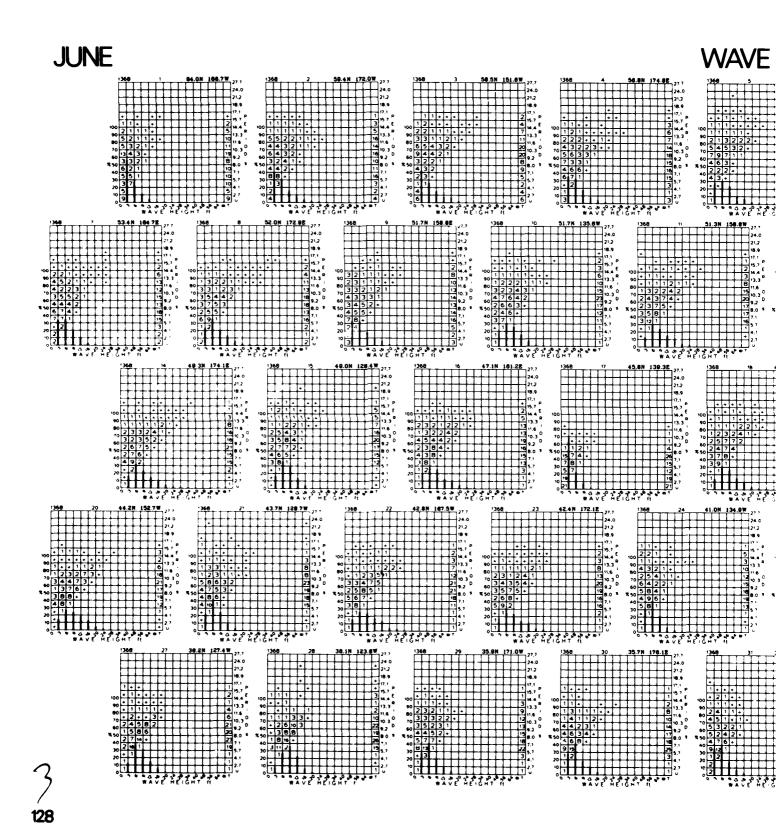




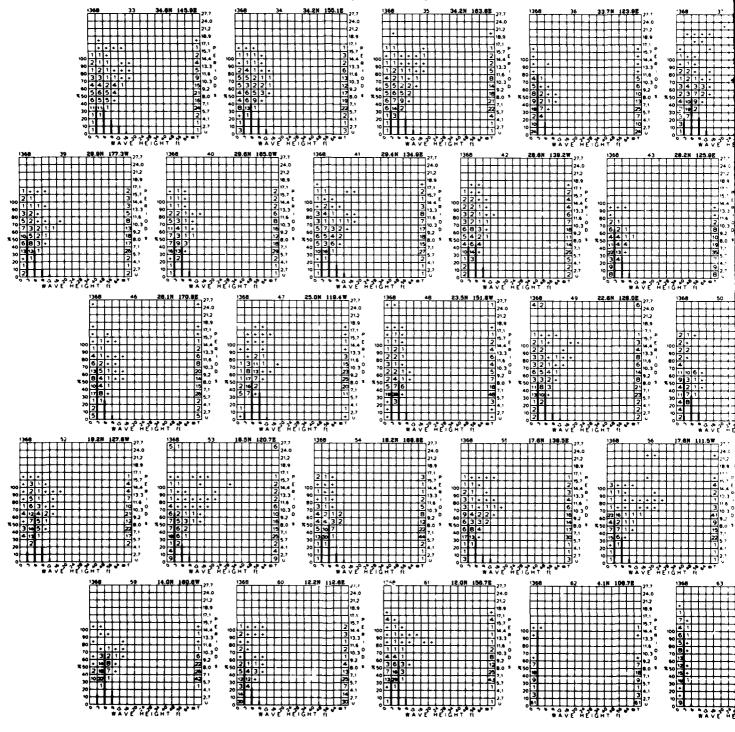
### WAVE HEIGHT AND PERIOD

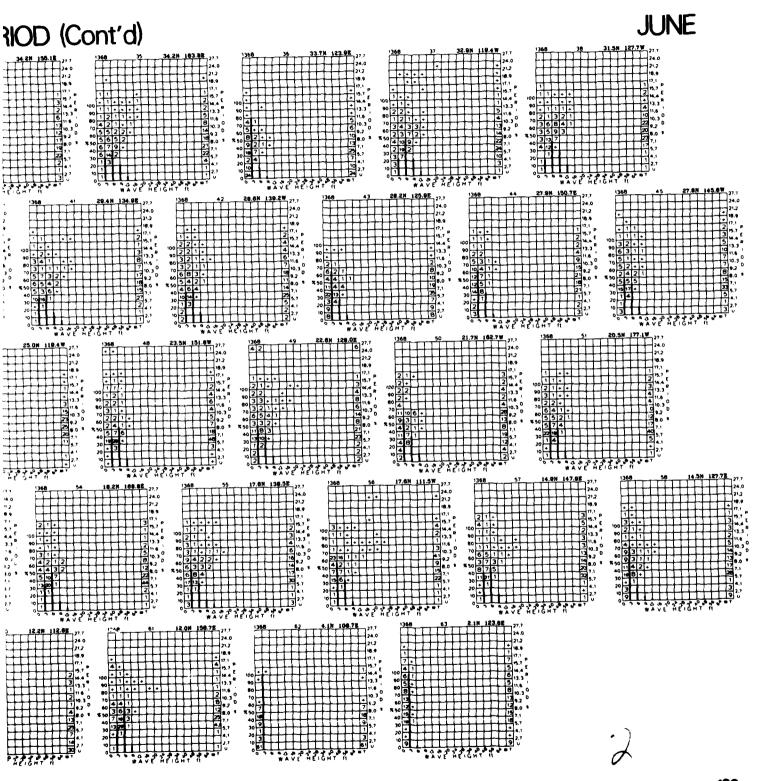


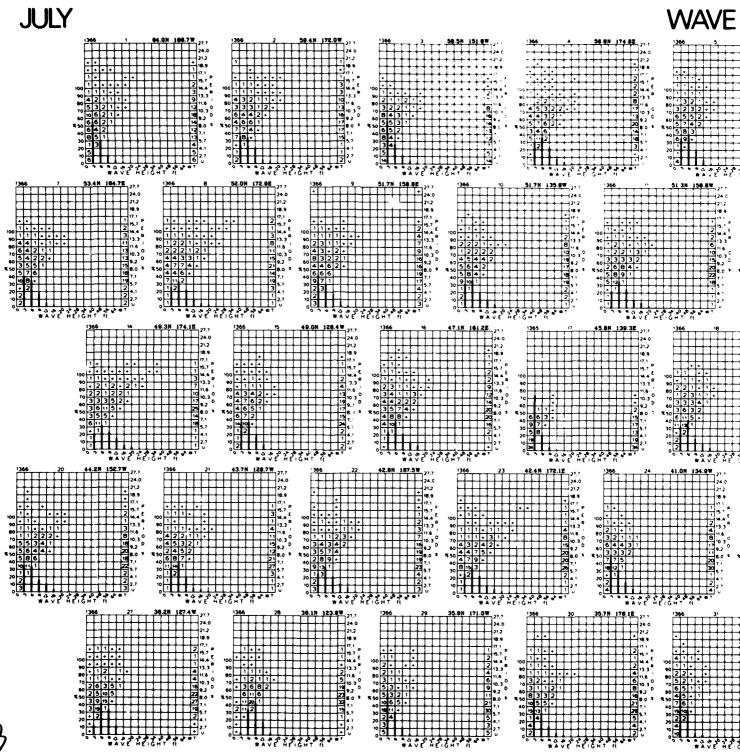




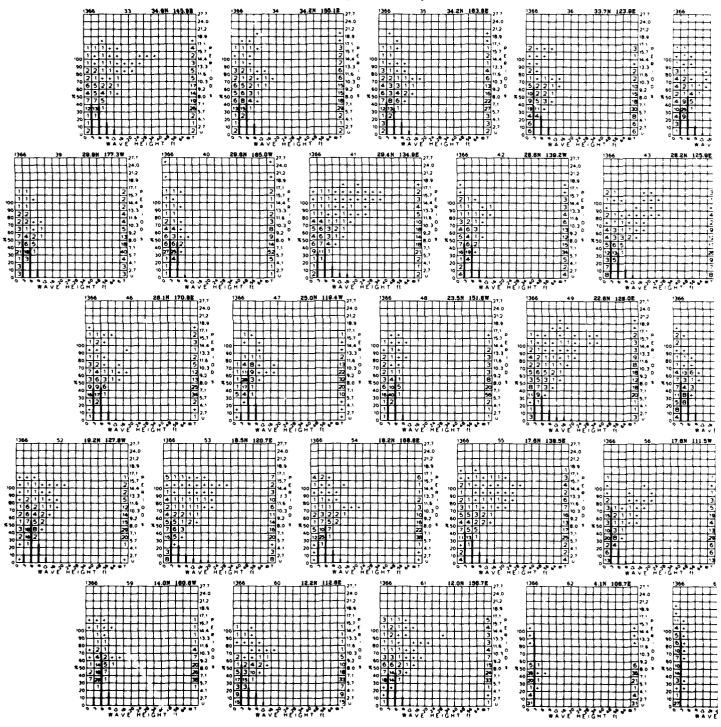
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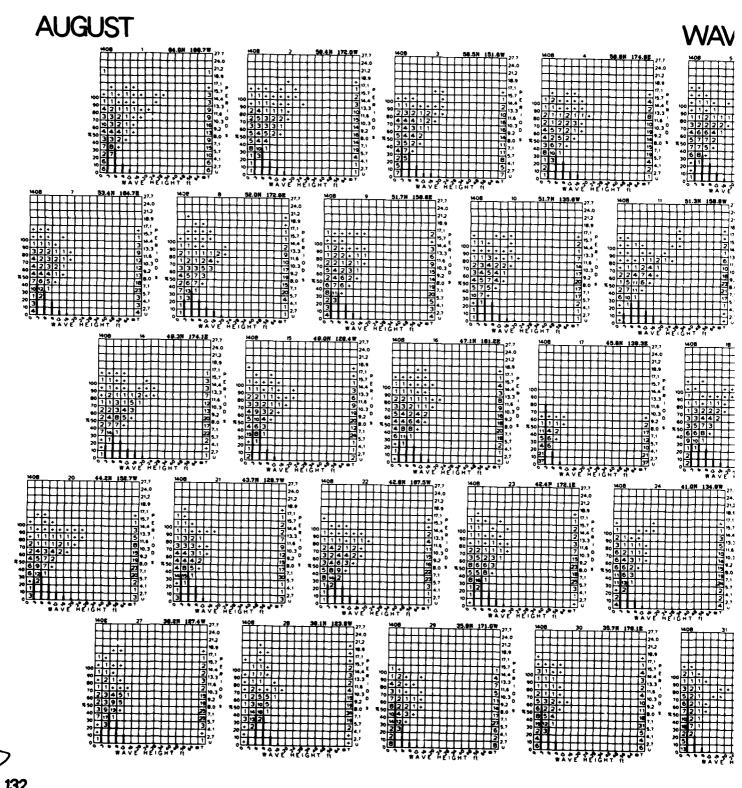




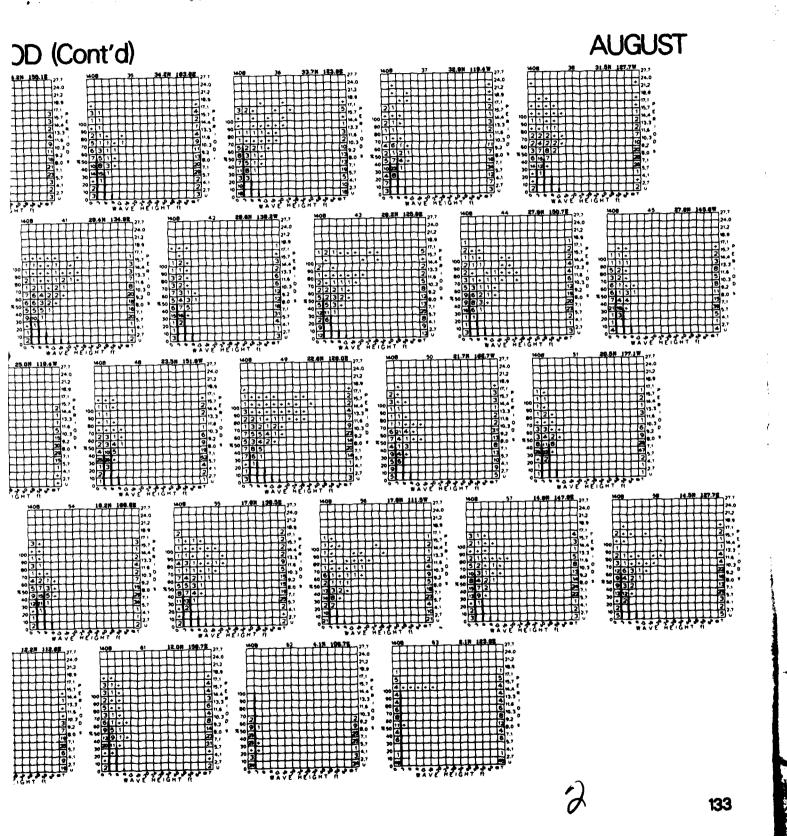
### WAVE HEIGHT AND PERIOD 39 4N 17Z.OW 271 222 24.0 118.9 119.1 119. 1366 11 31.3N 138.8W 27.7 1366 12 30.9N 143.6W 27.7 140.0W 17.7 14 1366 16 47.1N 161.2E 27.7 161.2E 27.2E 27. 1366 23 42.6N 172.1E 227 1366 24 41.0N 134.0W 27.7 1366 25 40.2N 131.2E 27.7 1366 25 40.2N 131.2E 27.7 1366 26 40.2N 131.2E 27.7 1366 26 40.2N 131.2E 27.7 1366 26 40.2N 131.2E 27.7 1366 27 40.2N 131.2E 27.7 136.2E 27.2 136

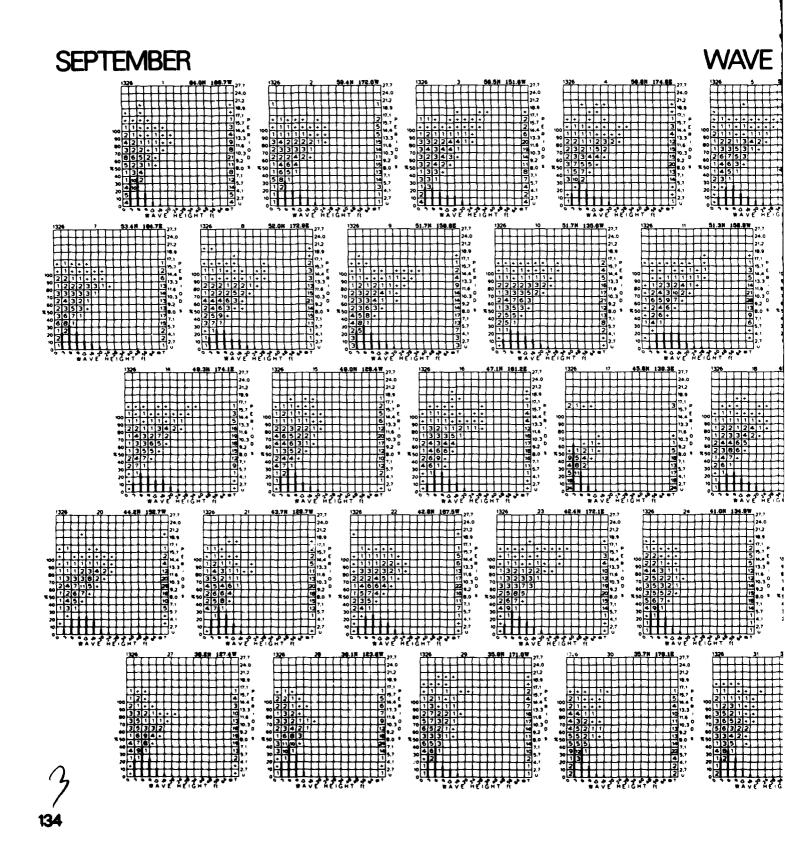


OD (Cont'd) JULY

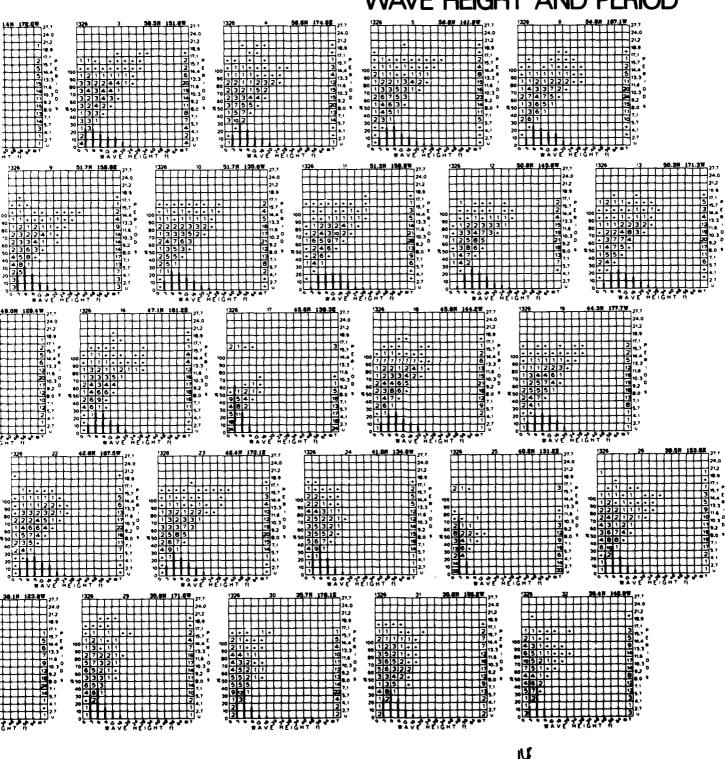


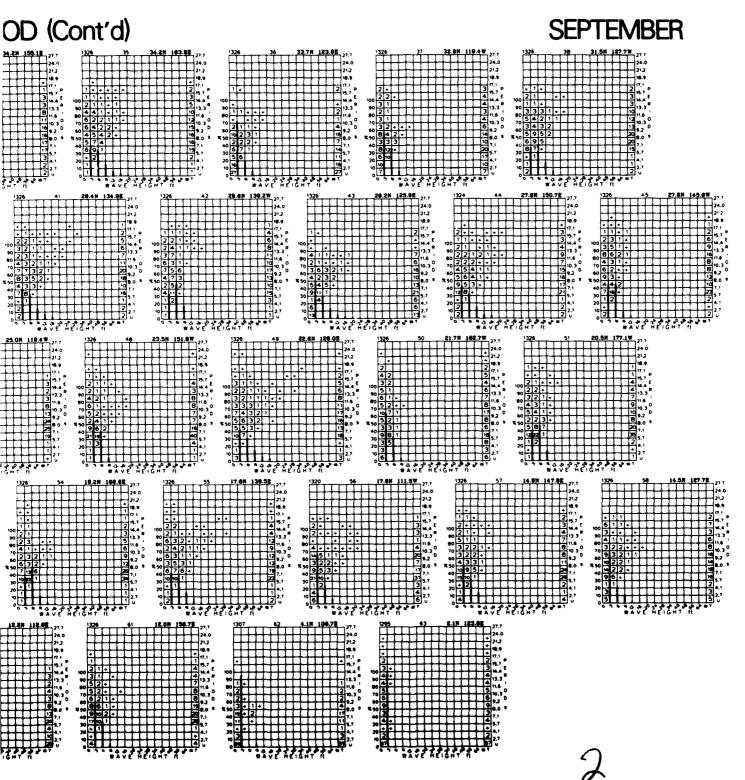
#### WAVE HEIGHT AND PERIOD 128.4 W 27.7 | 24.0 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 27.2 | 2

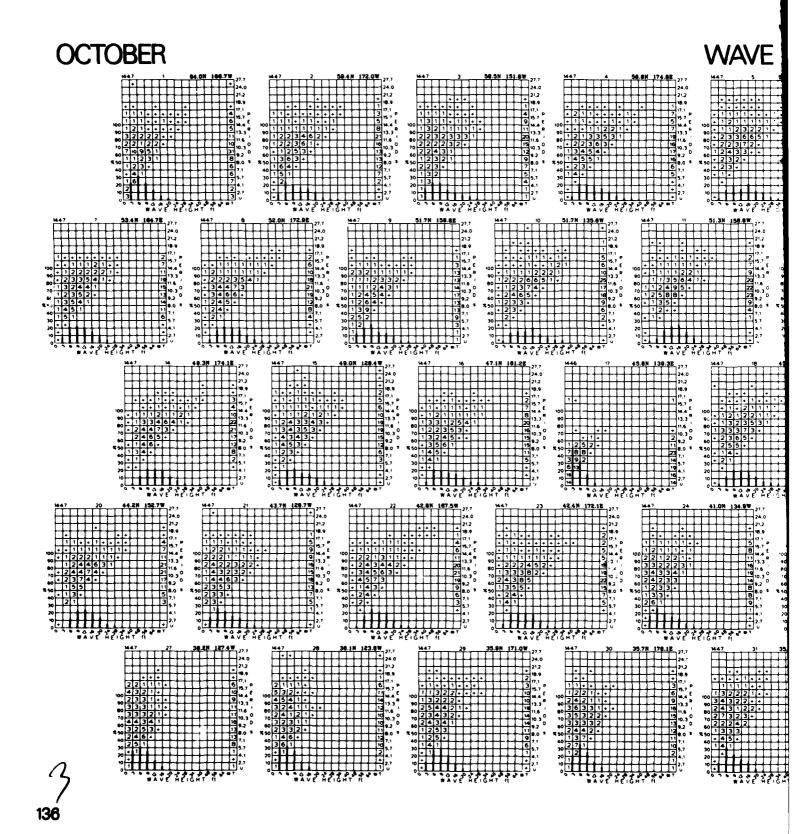




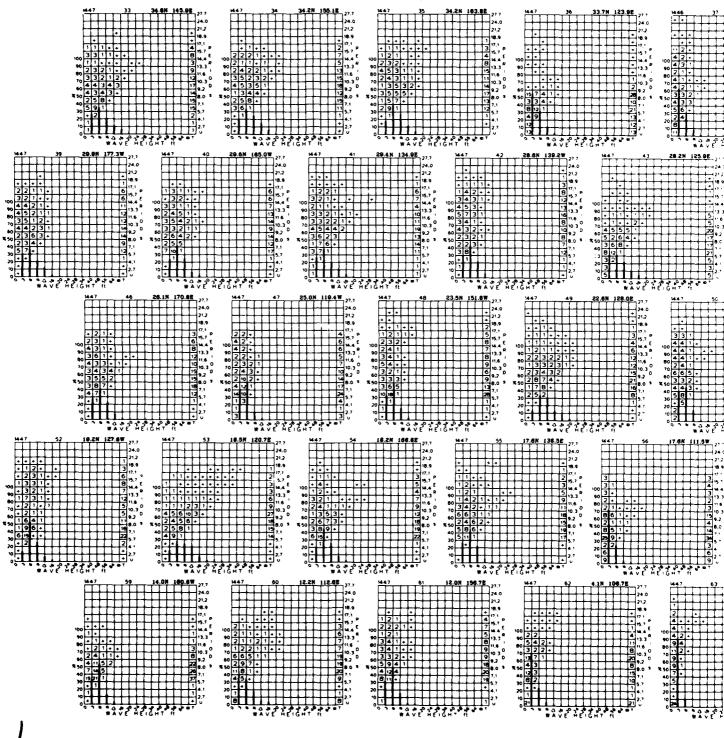
#### WAVE HEIGHT AND PERIOD

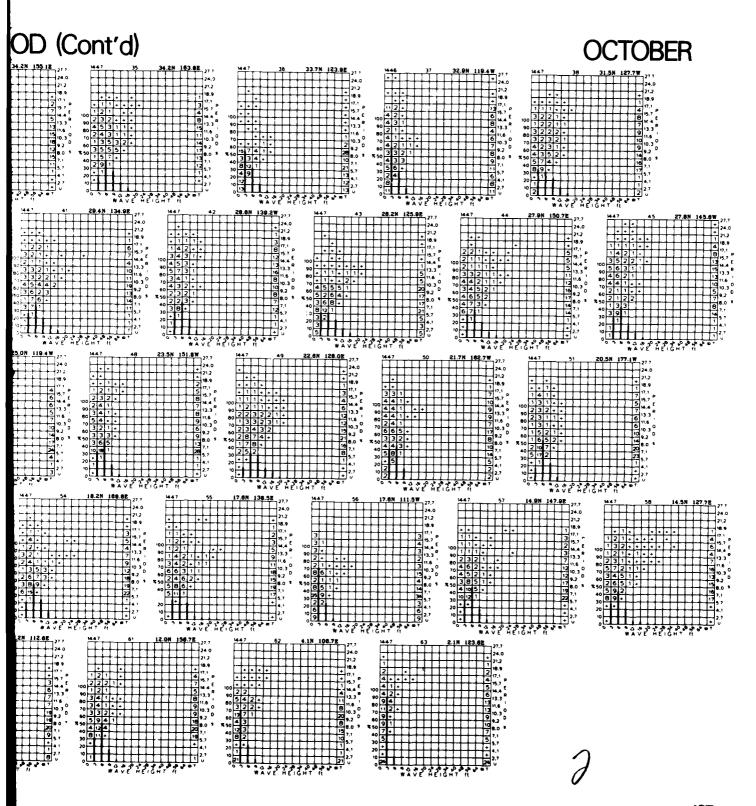


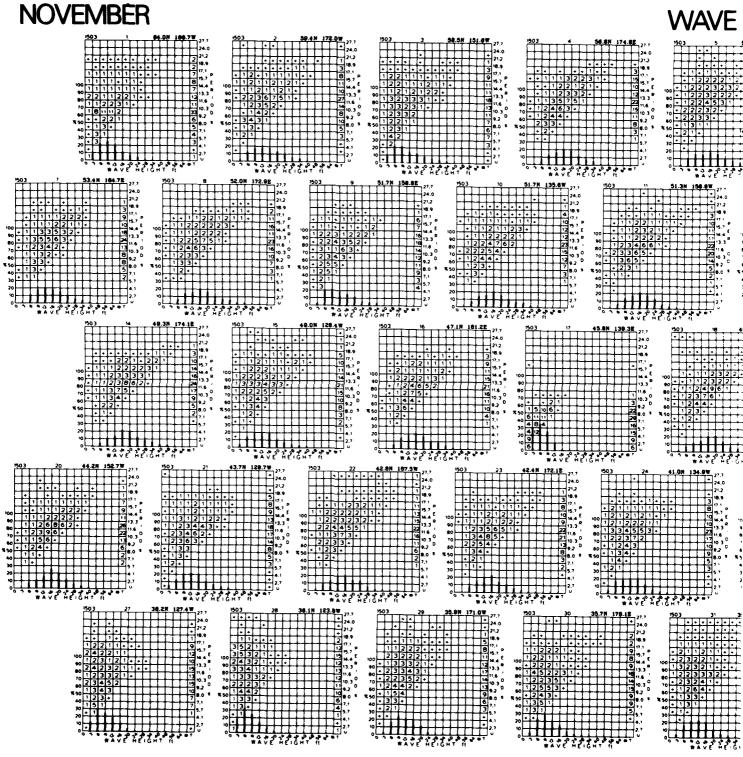




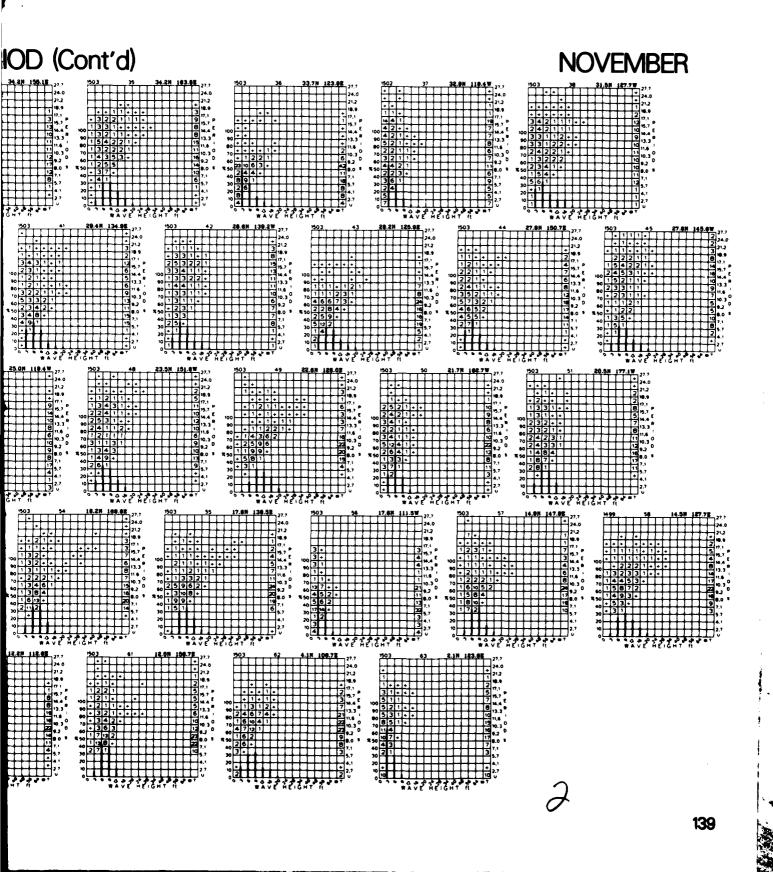
## WAVE HEIGHT AND PERIOD

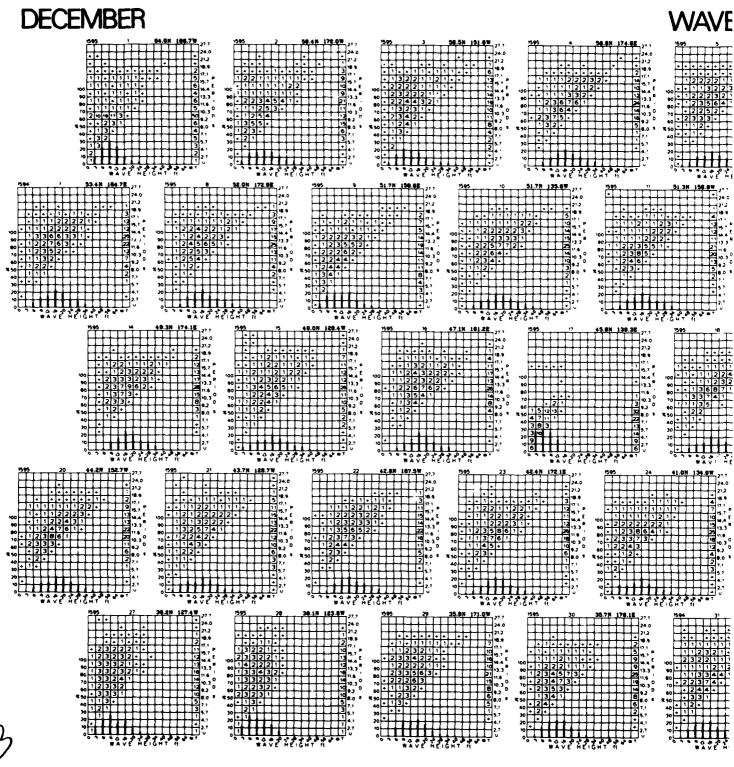




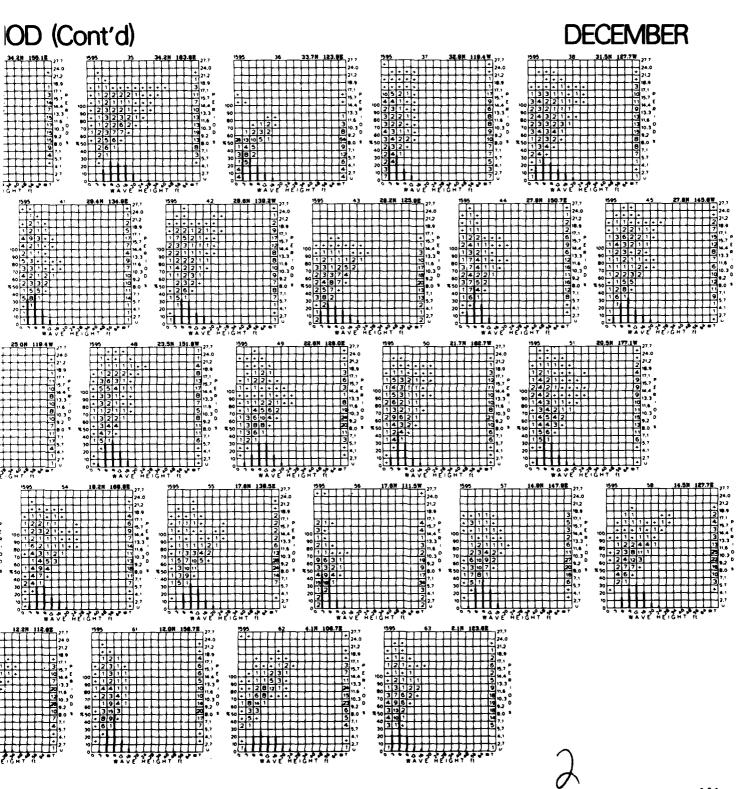


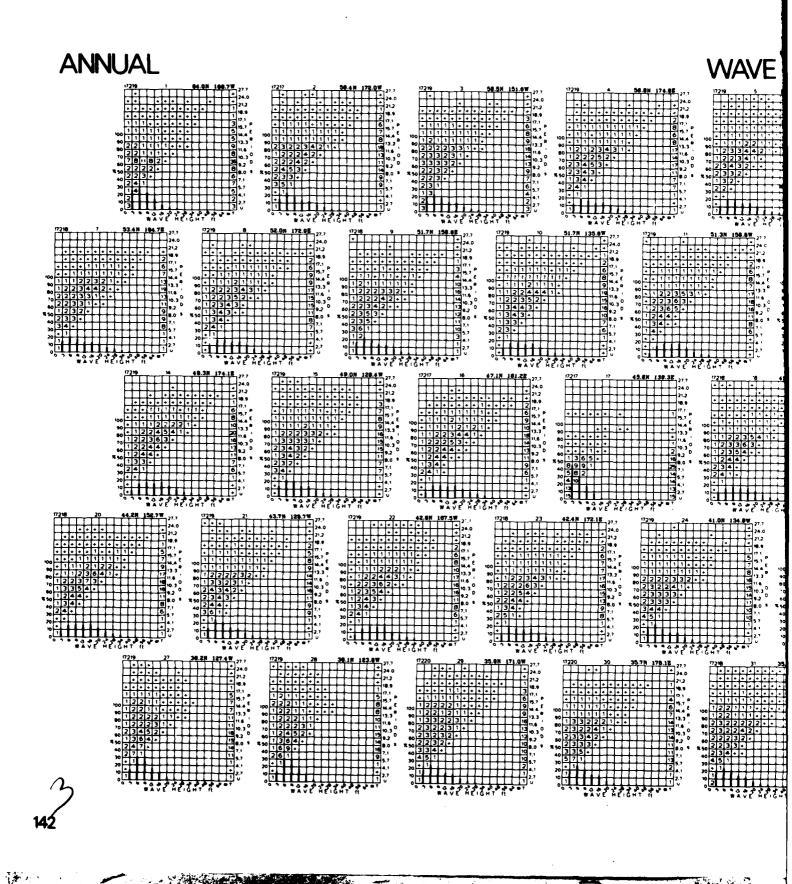
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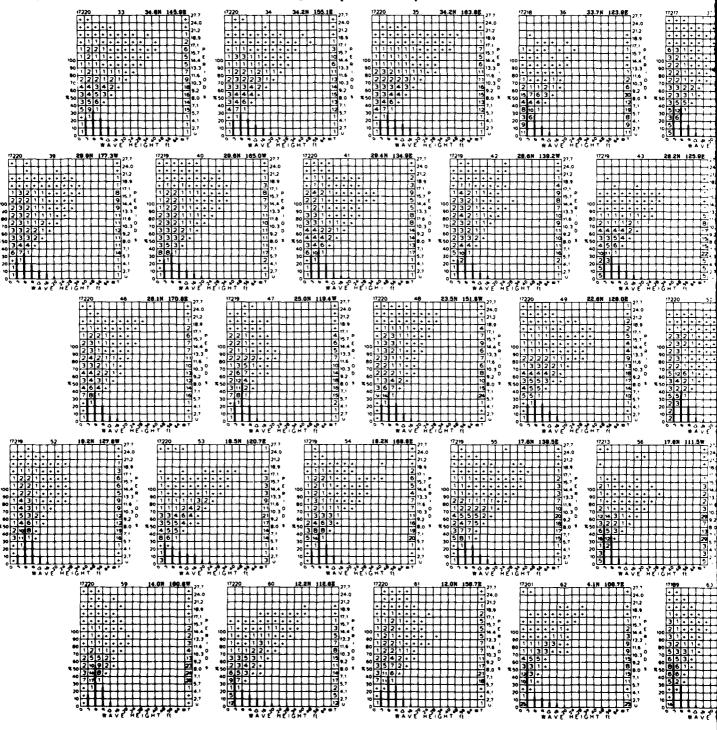


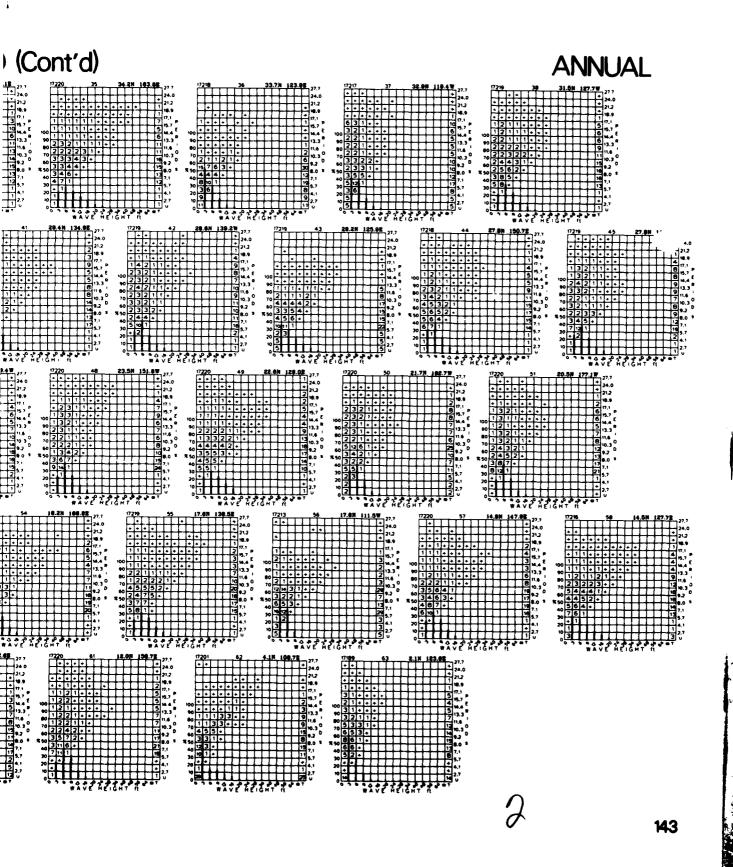
### WAVE HEIGHT AND PERIOD

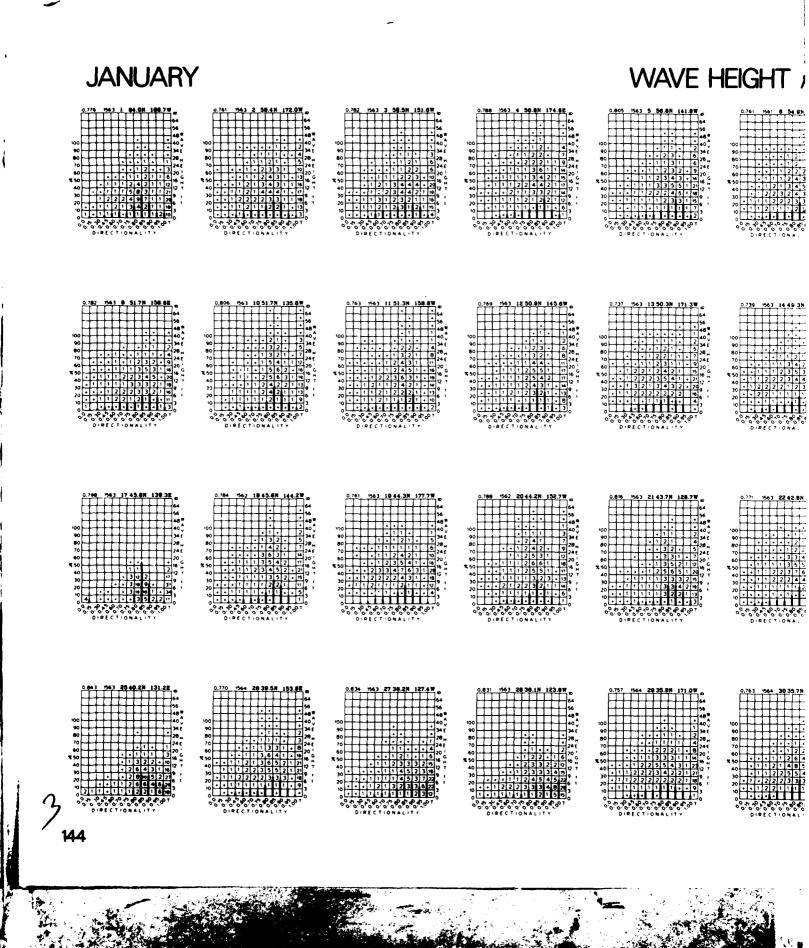




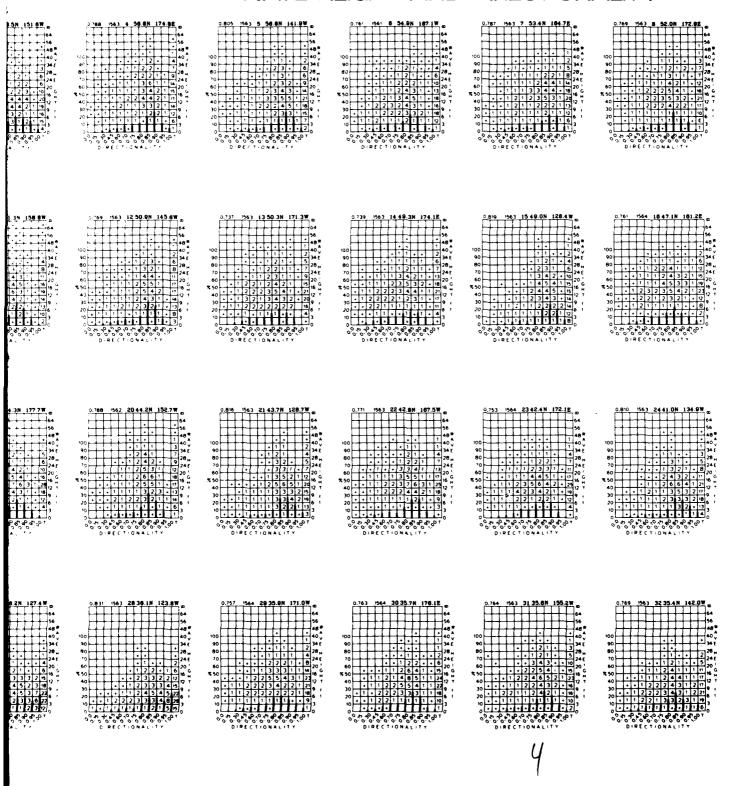
## WAVE HEIGHT AND PERIOD | 1219 | 24 | 41.011 | 134.00 | 77.7 | 1218 | 25 | 40.2N | 131.8E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E | 77.7 | 1220 | 26 | 30.5N | 133.0E



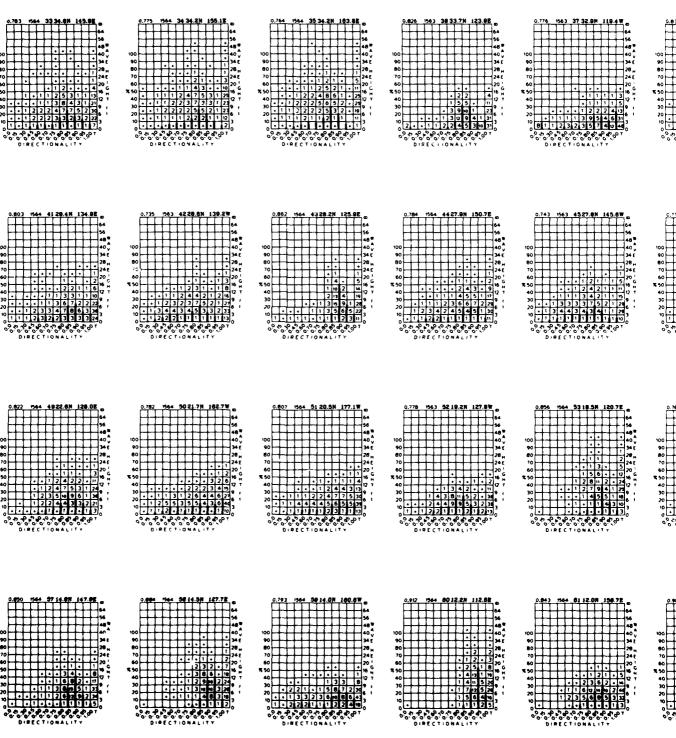




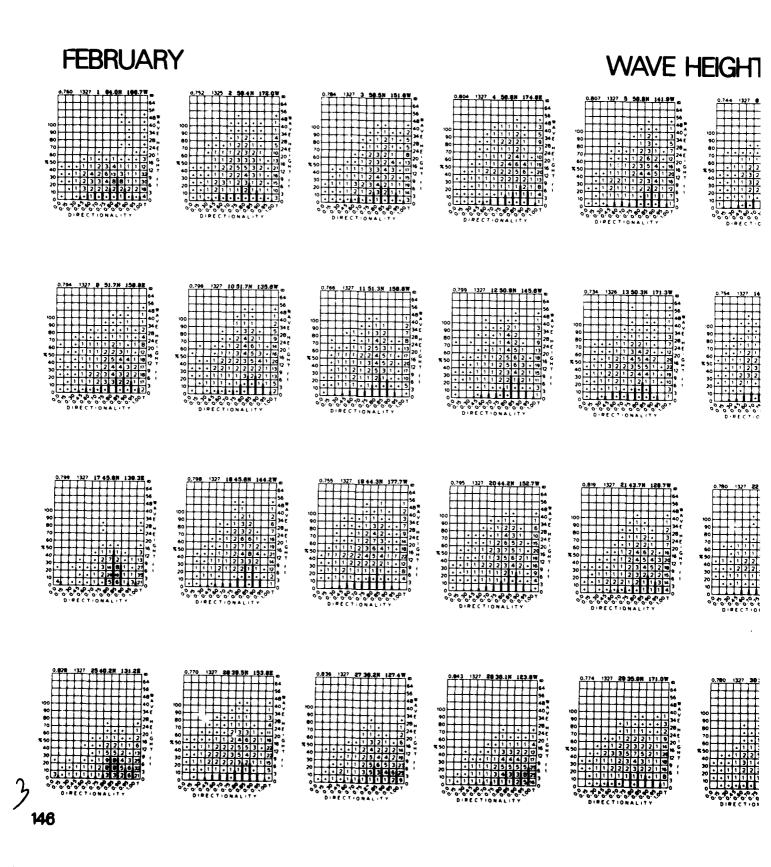
#### WAVE HEIGHT AND DIRECTIONALITY



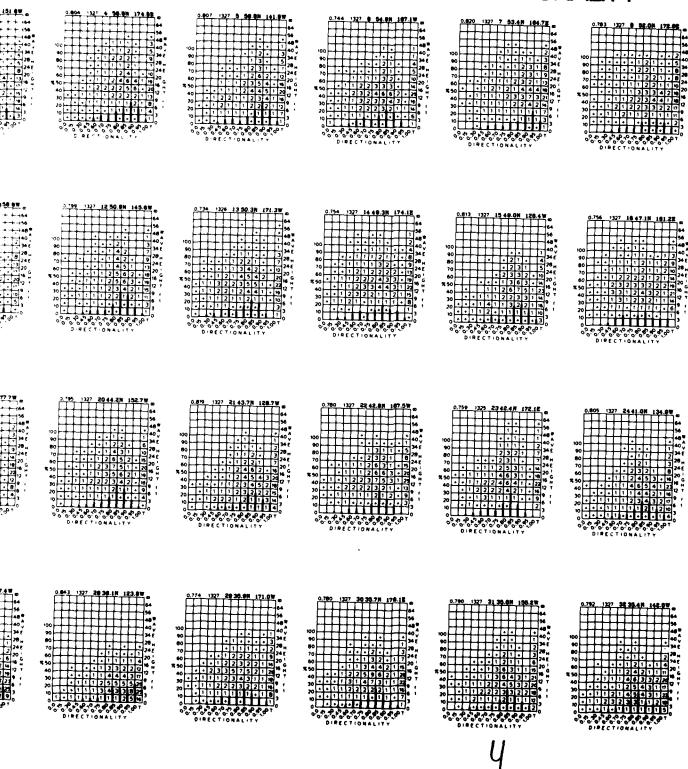
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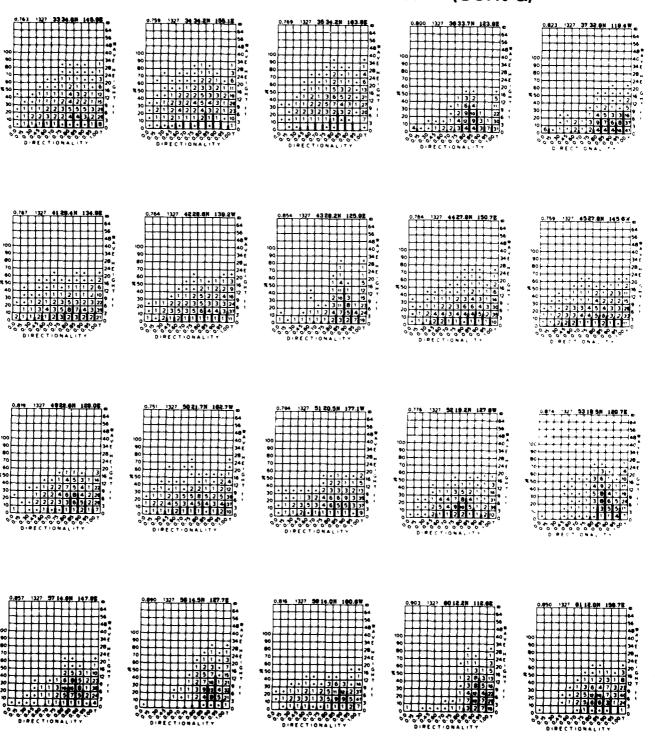
## **JANUARY** ECTIONALITY (Cont'd)



#### WAVE HEIGHT AND DIRECTIONALITY

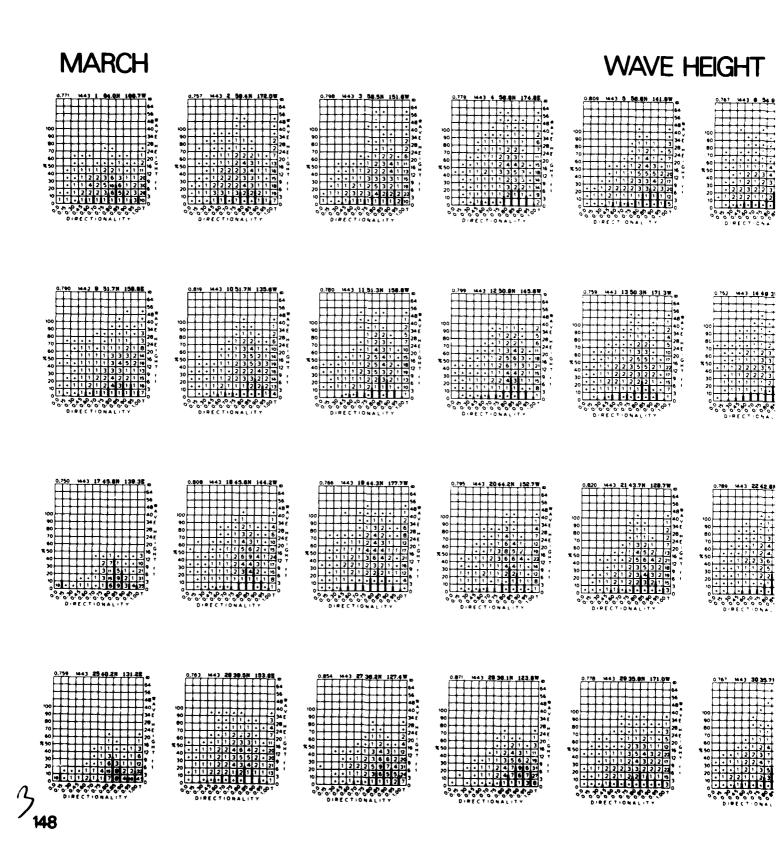


#### WAVE HEIGHT AND DIRECTIONALITY (Cont'd)

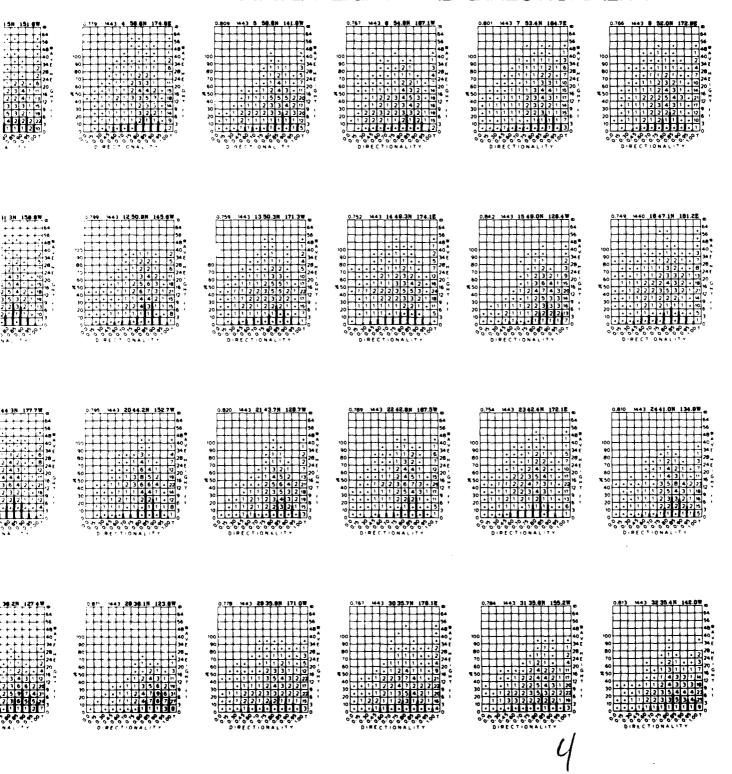


A TOP A CONTRACTOR

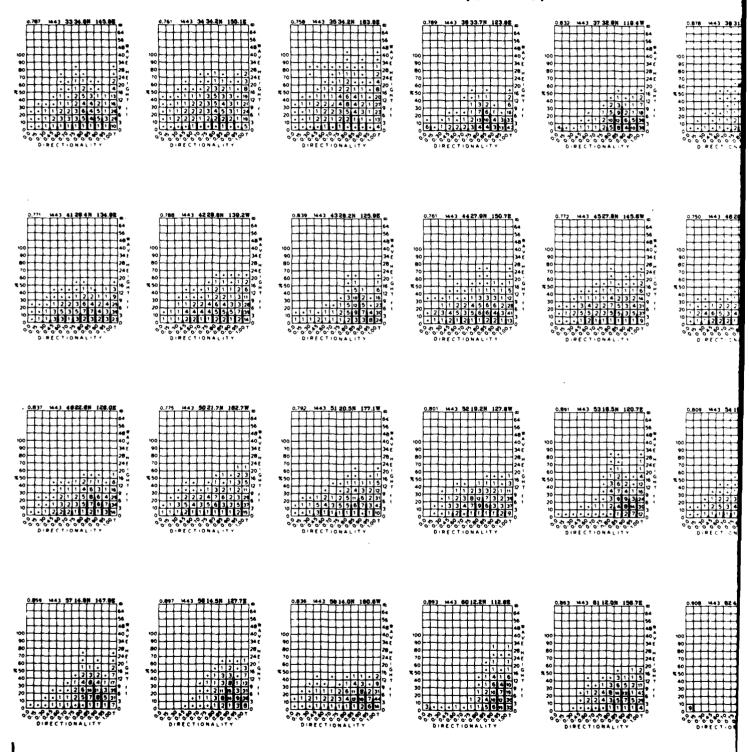
# TIONALITY (Cont'd) **FEBRUARY**



#### WAVE HEIGHT AND DIRECTIONALITY

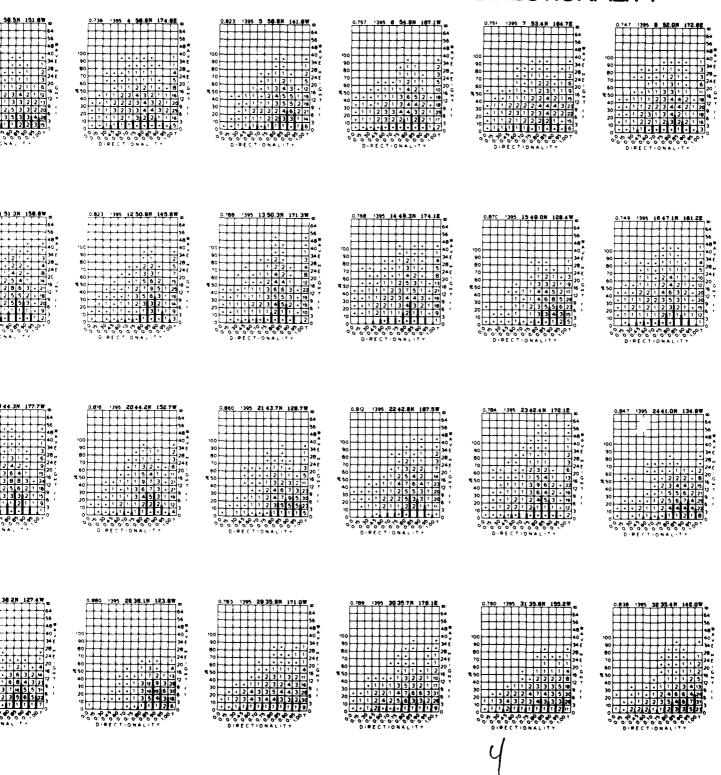


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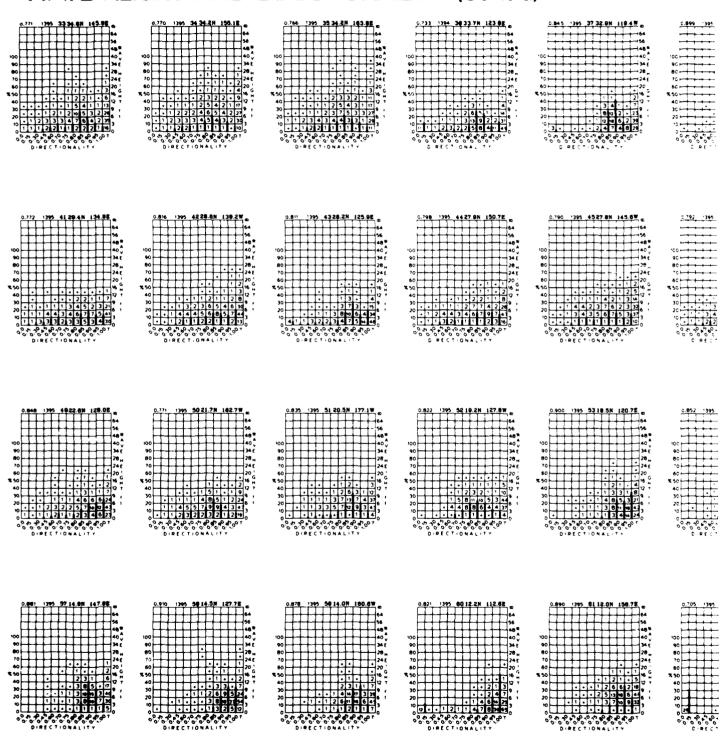


### **MARCH** TIONALITY (Cont'd) 0 10 443 4627 9N 190 7E 0 43 20.2N 125.0E

# WAVE HEIGHT **APRIL** 150

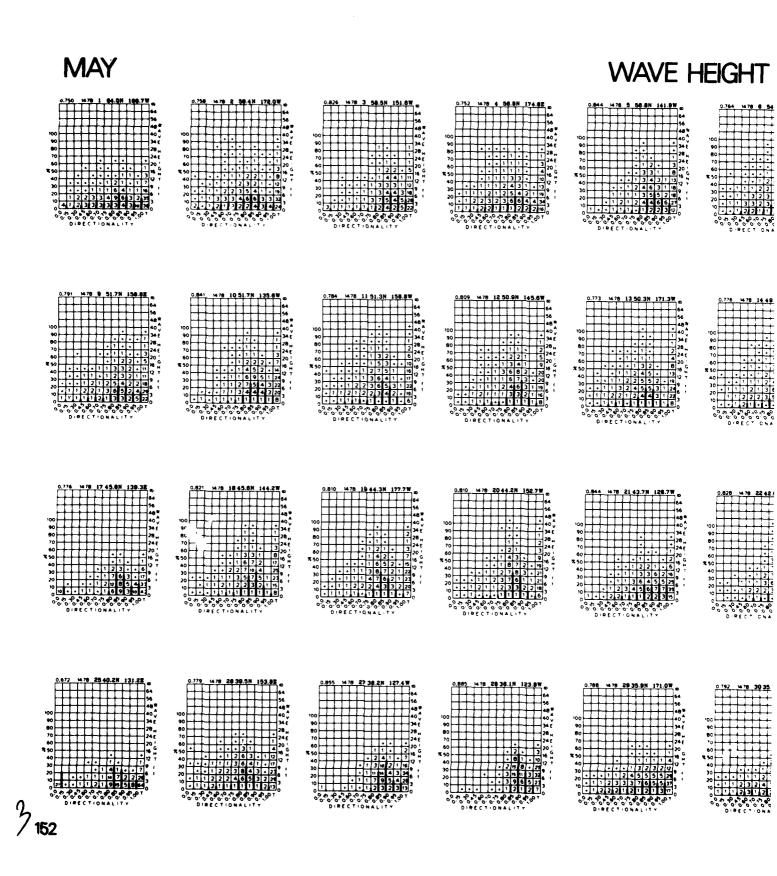


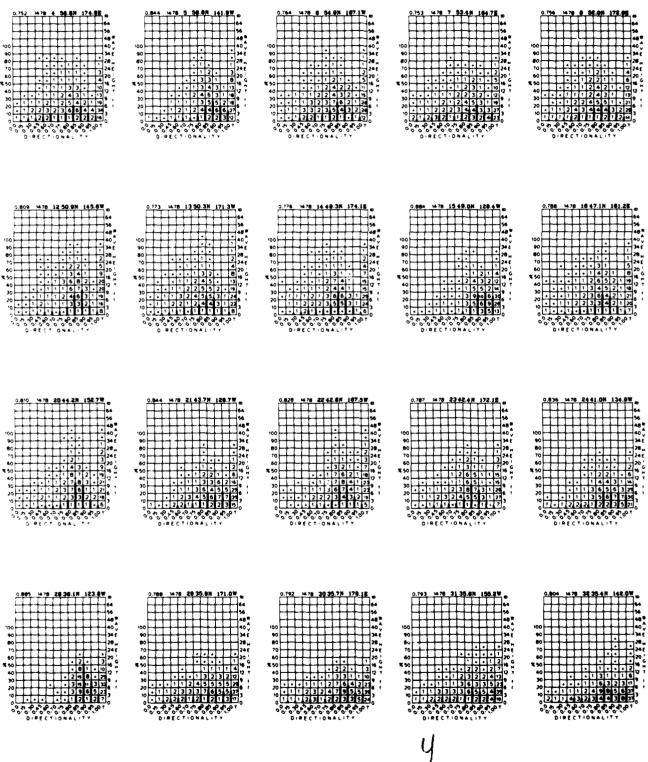
S. S. SHANNING TO SERVICE AND ADDRESS OF THE SER

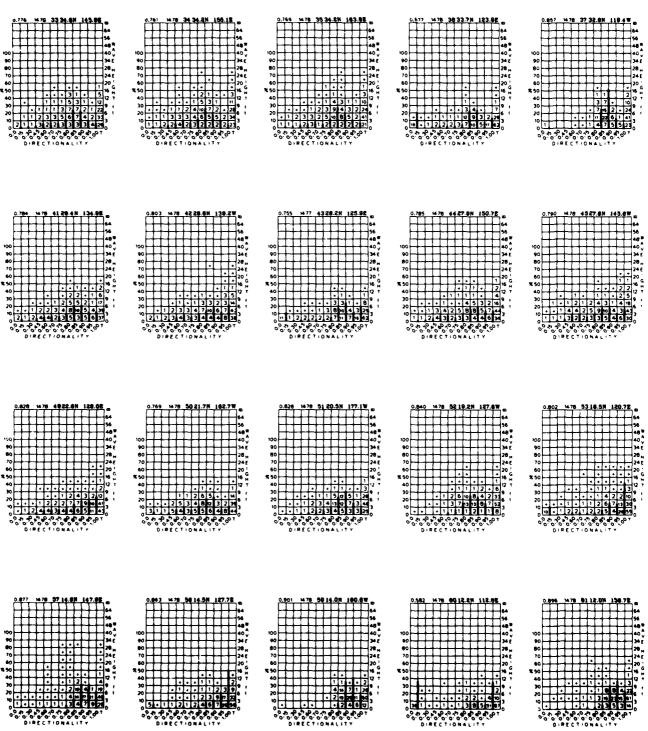


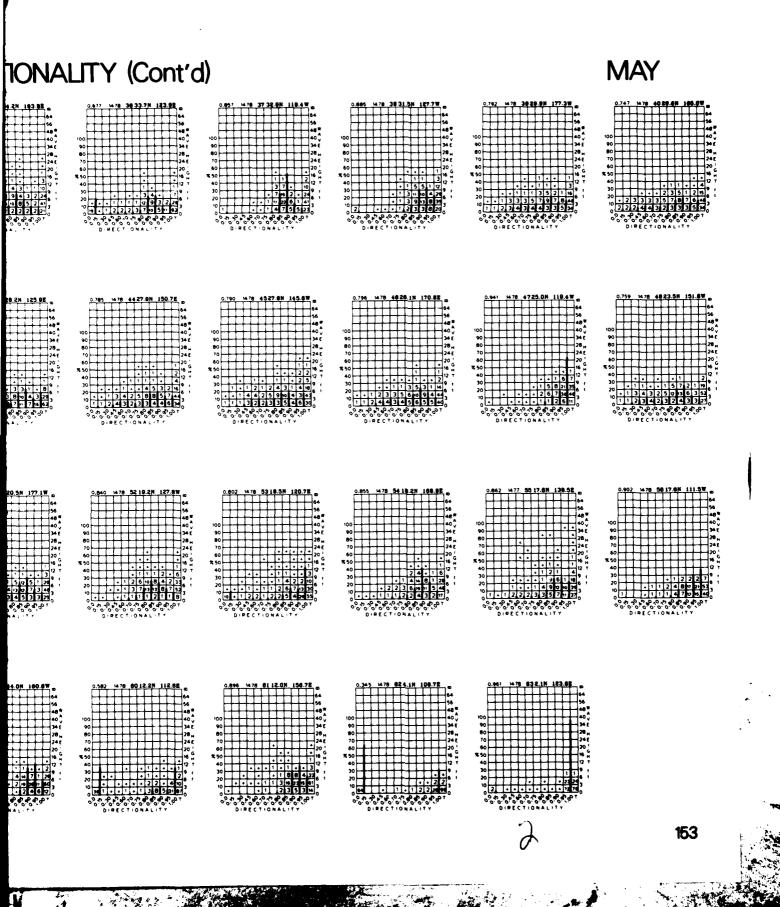
### **APRIL** DNALITY (Cont'd) 0.750 3929 9N 177.3W 0 164 0 1 0.899 1395 38 31.5N 127.7W ++++56 151

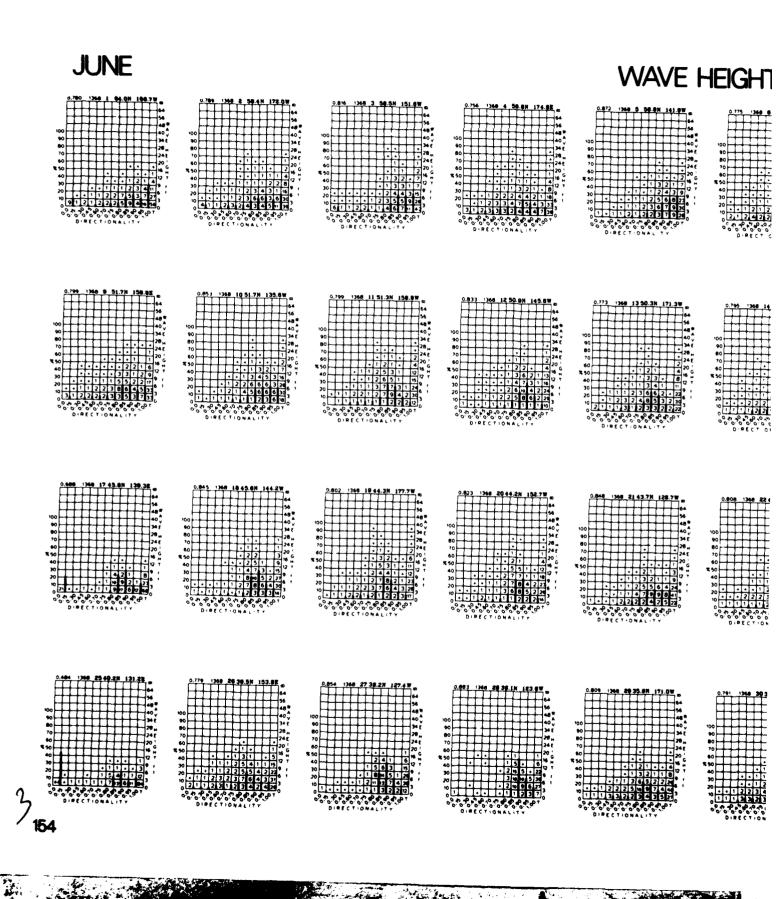
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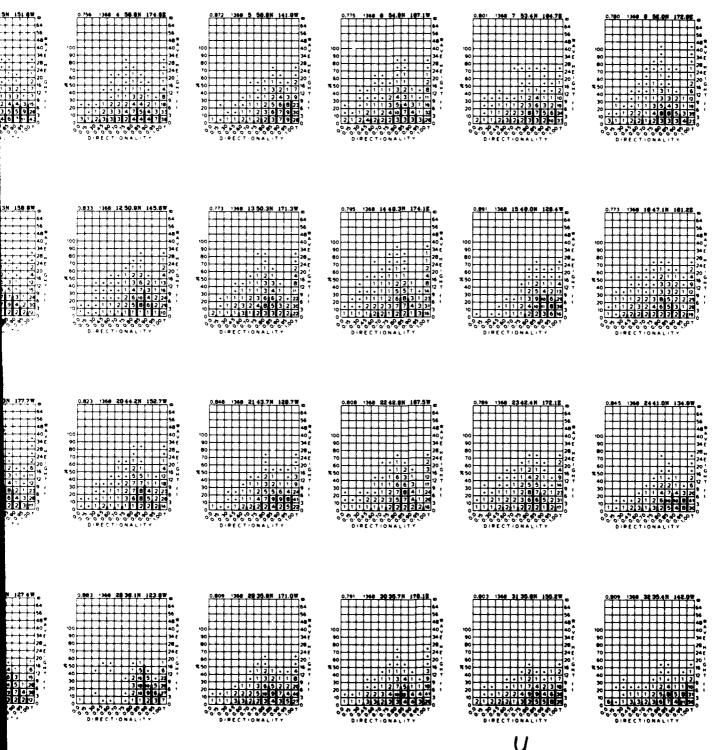


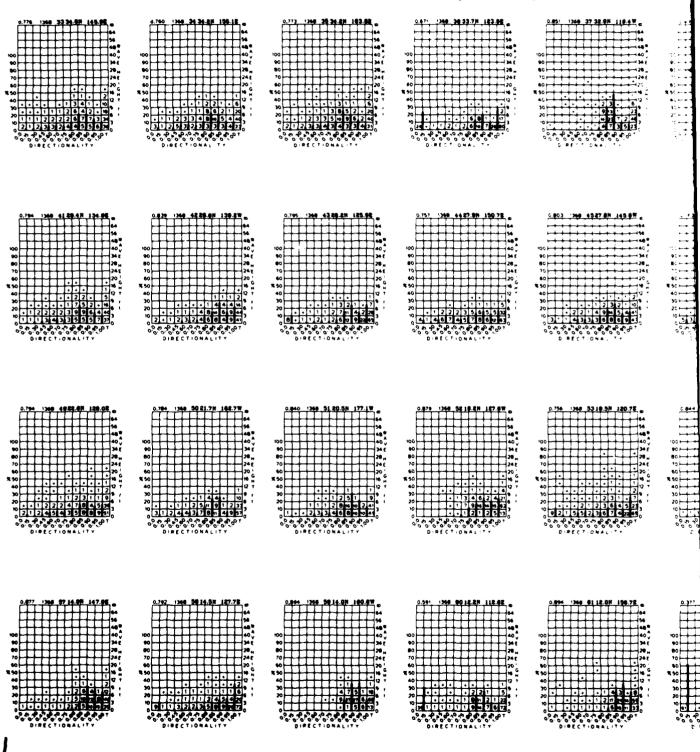




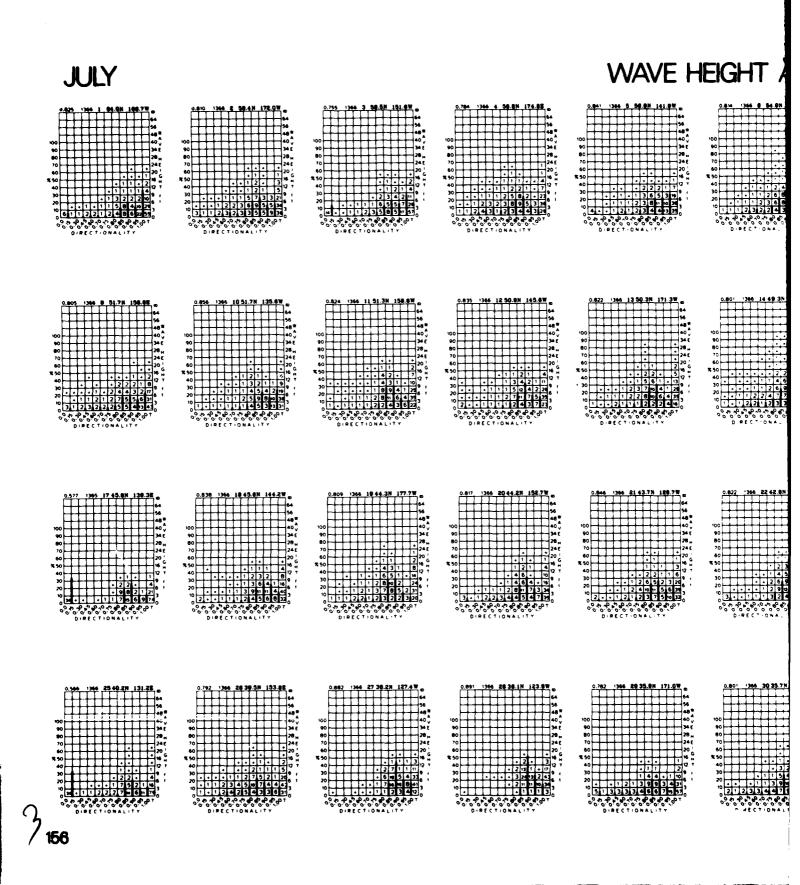


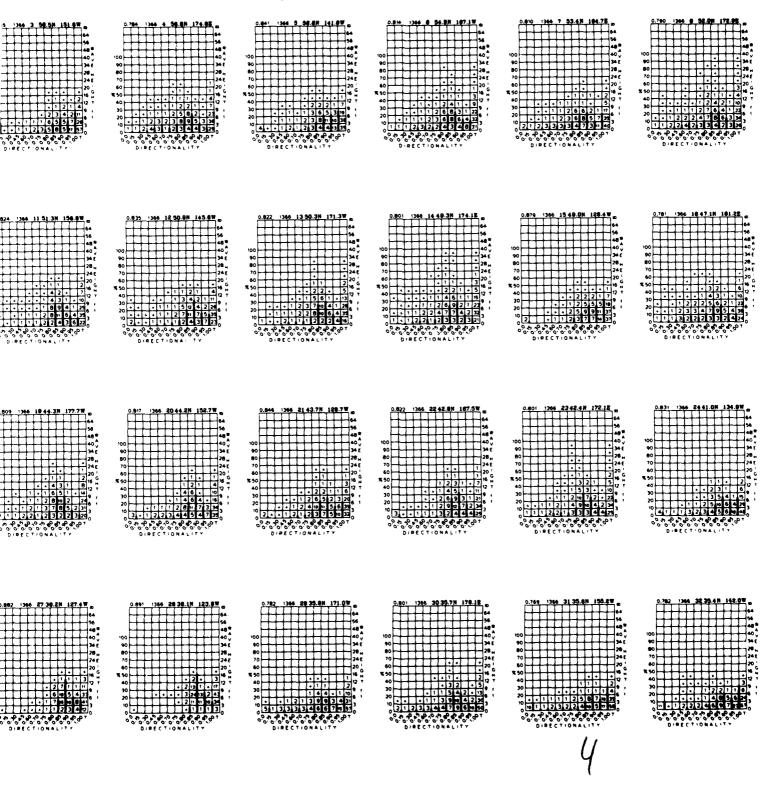


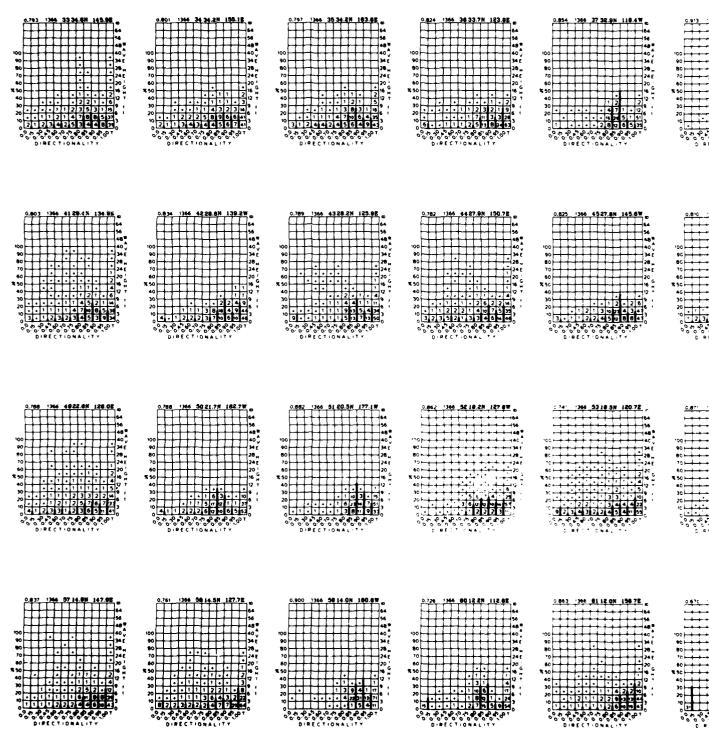




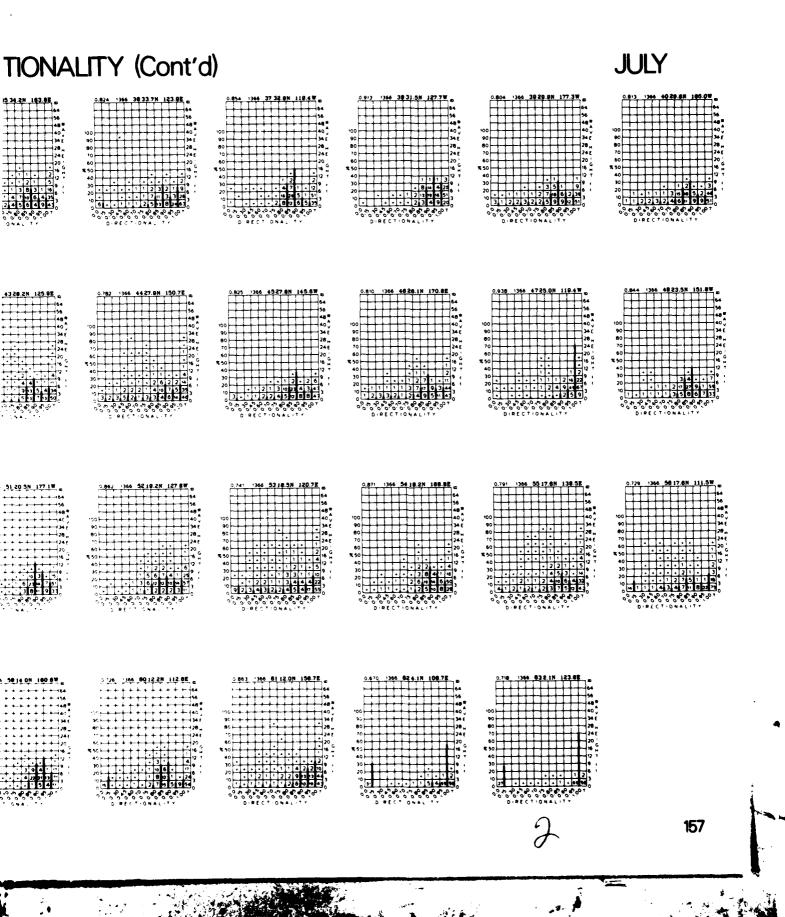
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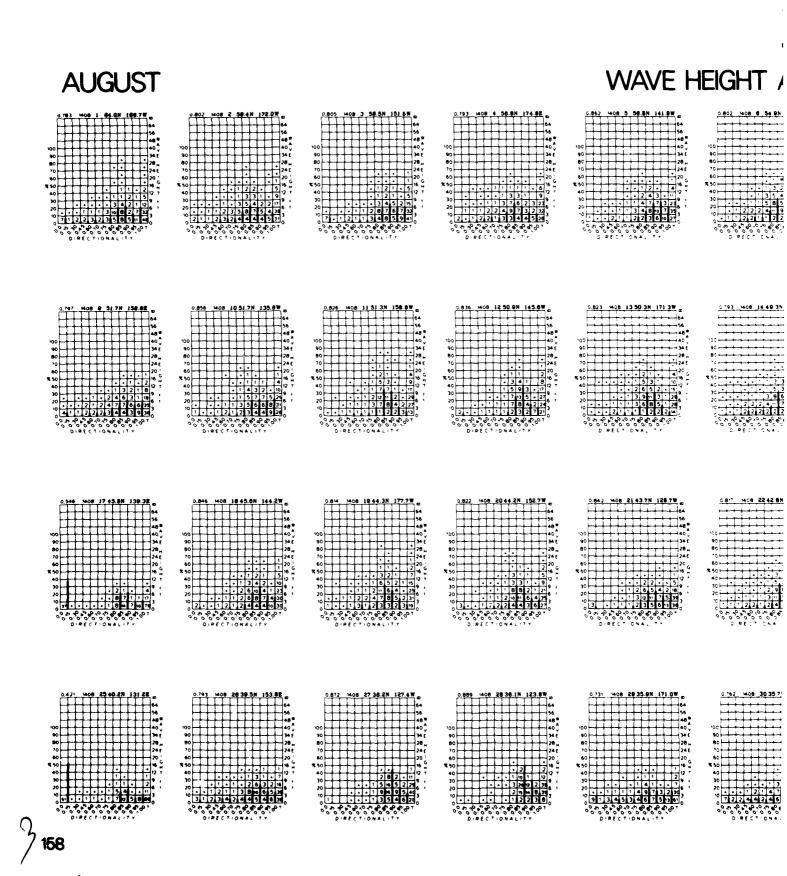




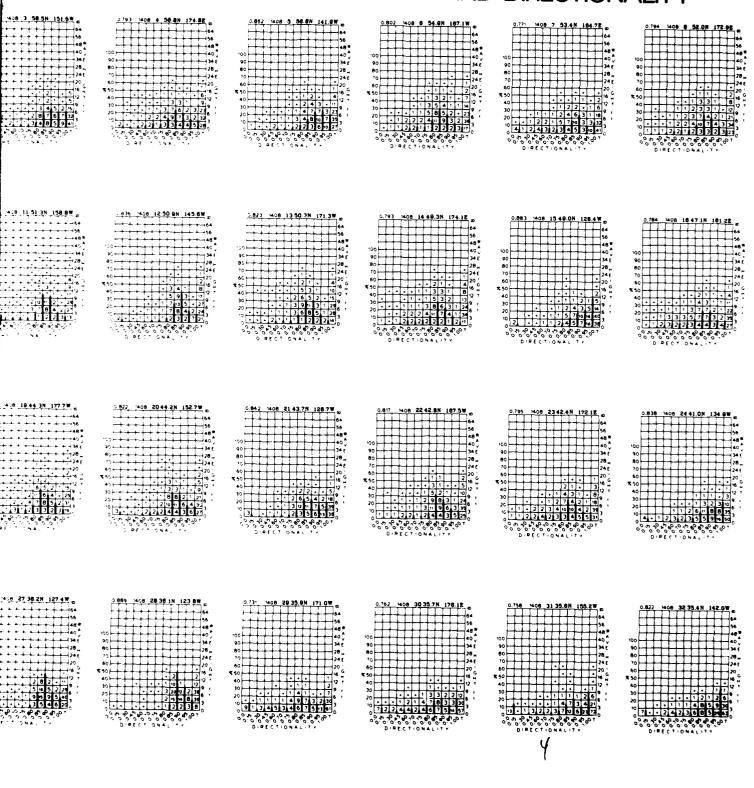


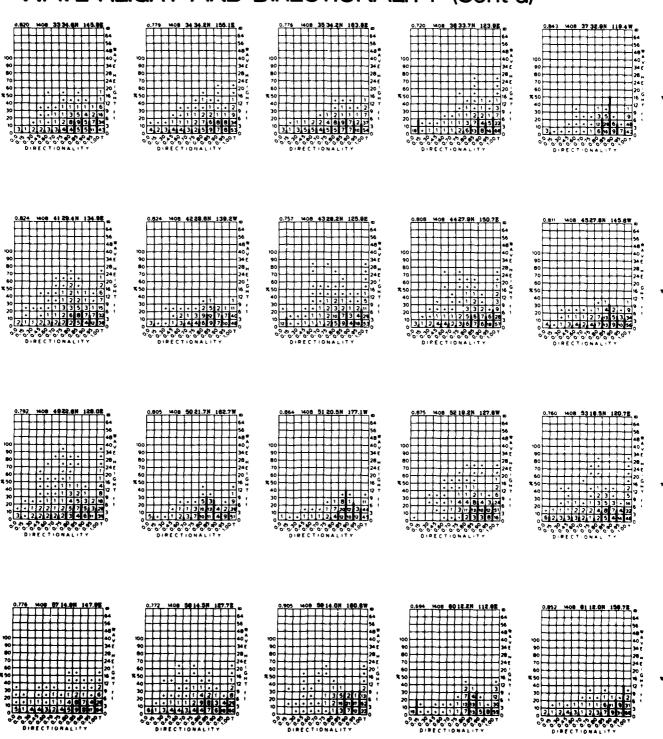
Charles South

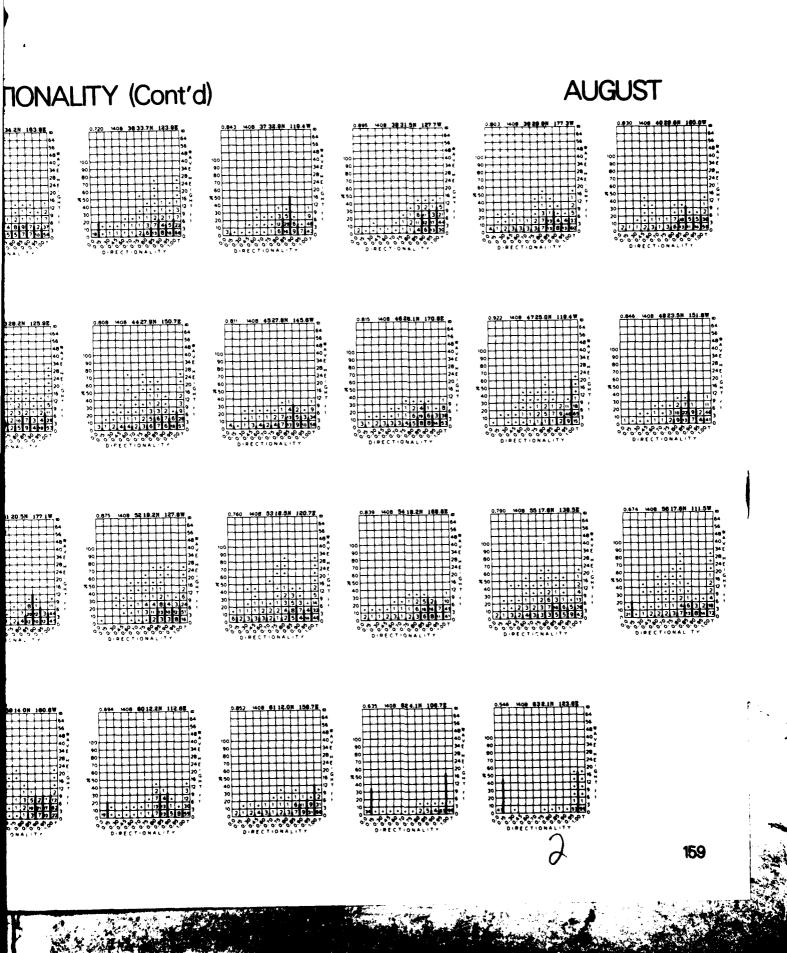


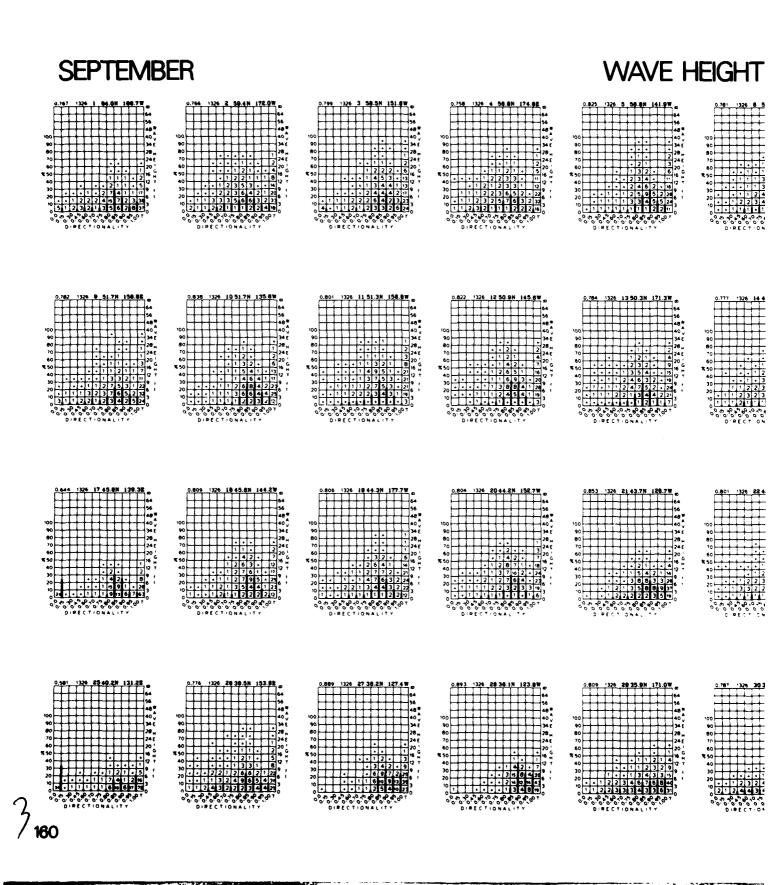


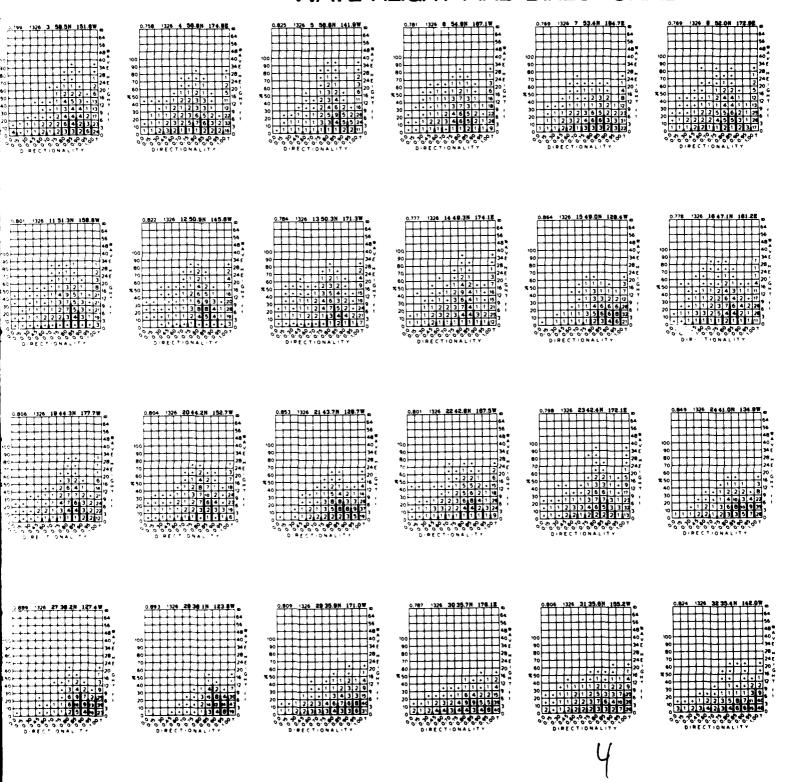
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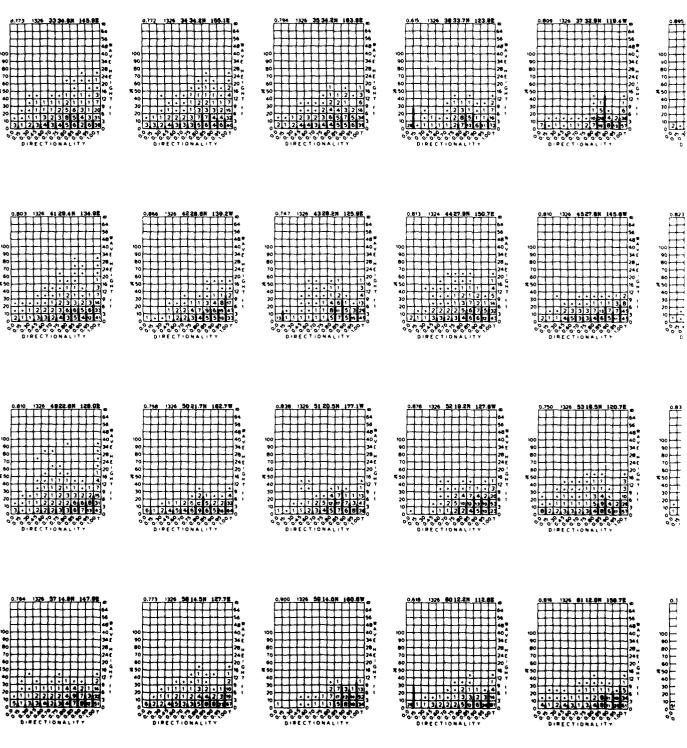




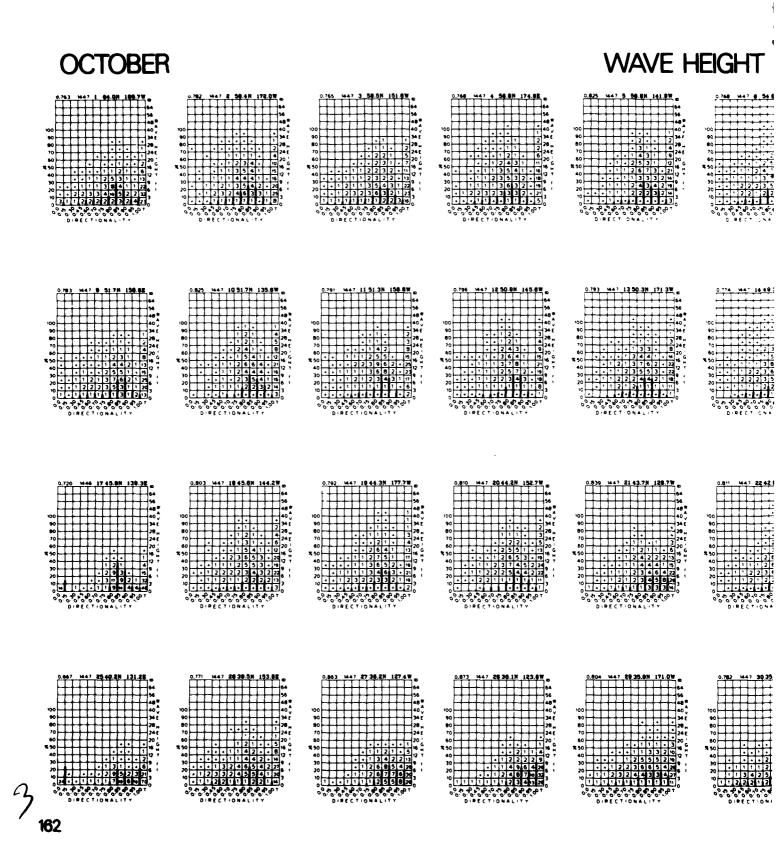


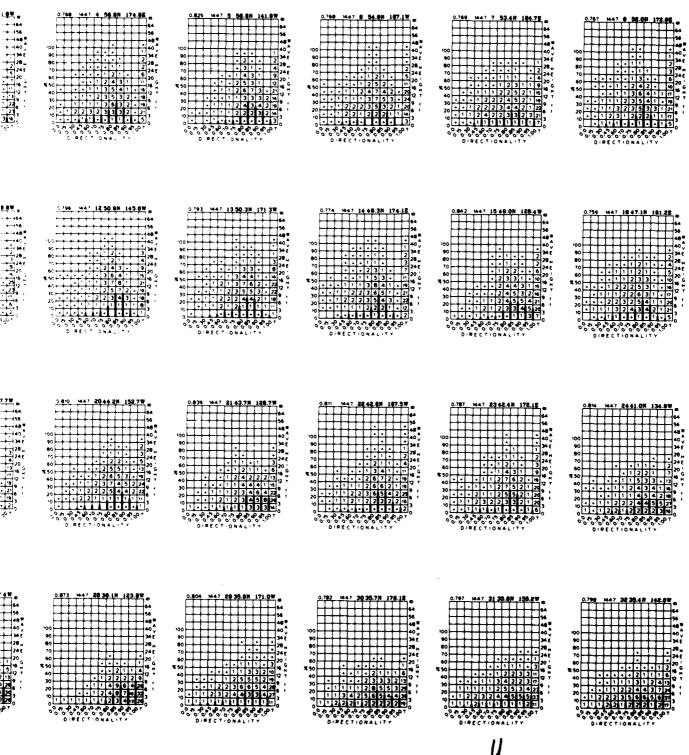


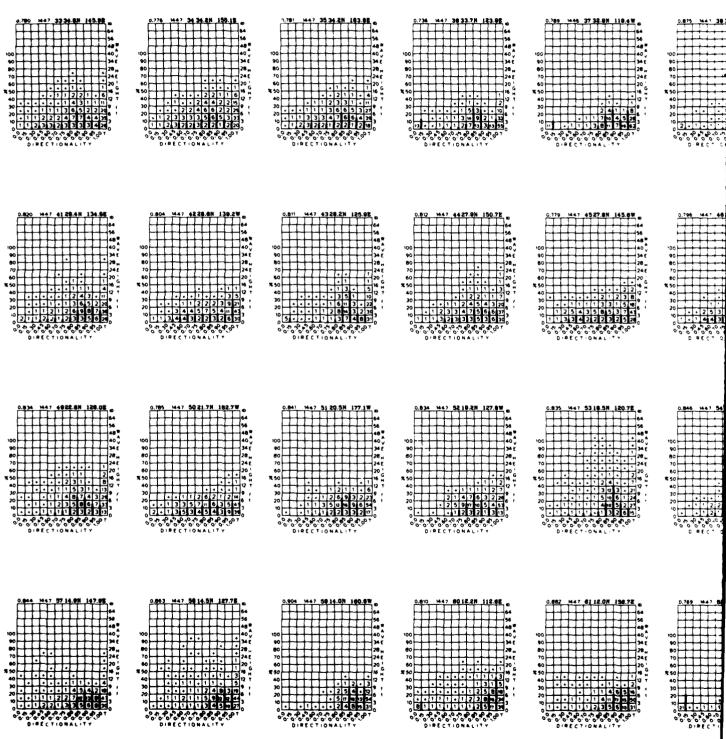




# RECTIONALITY (Cont'd) SEPTEMBER





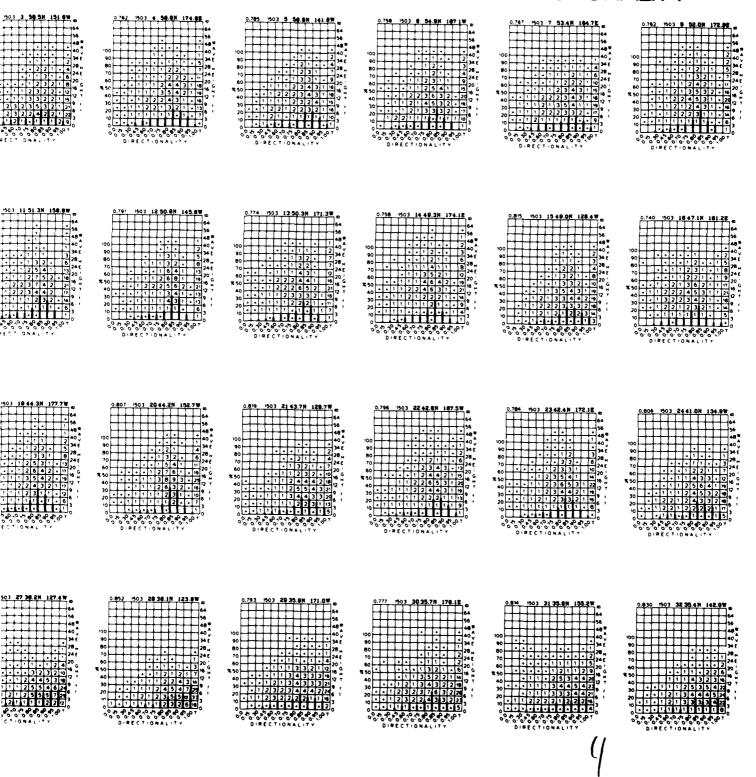


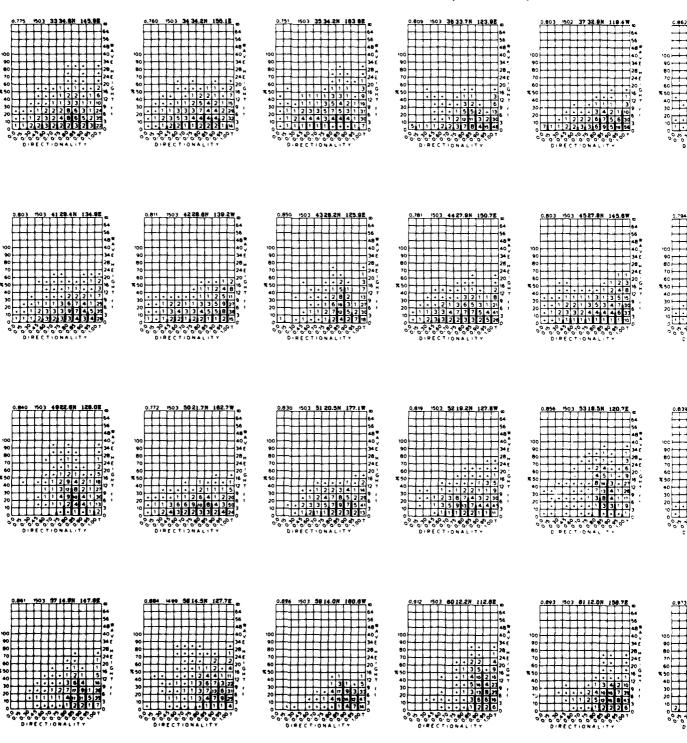
## CTIONALITY (Cont'd) **OCTOBER** 0,778 444 7 48 23.5N 151.8V 64 44 45 35 41 11.65

# WAVE HEIGHT **NOVEMBER**

The Control of

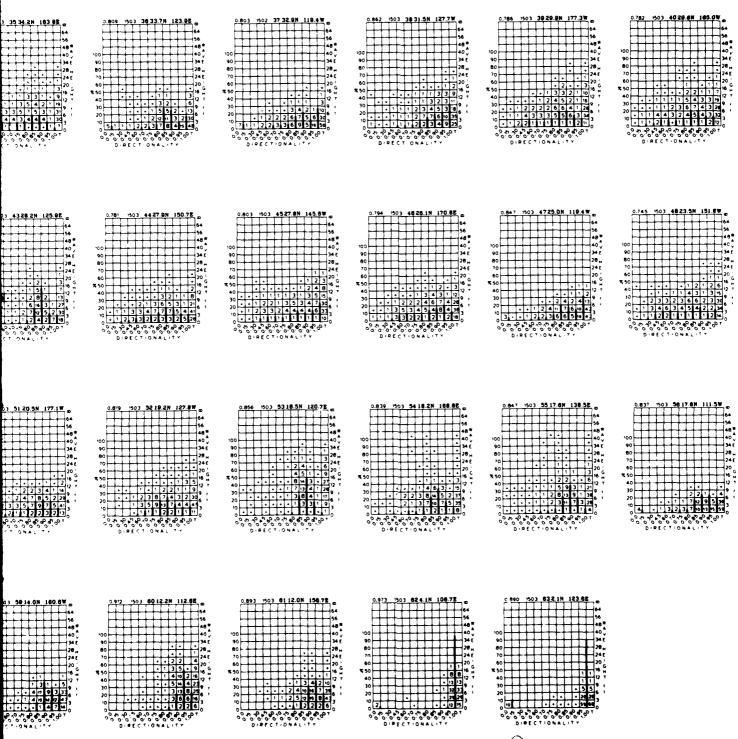
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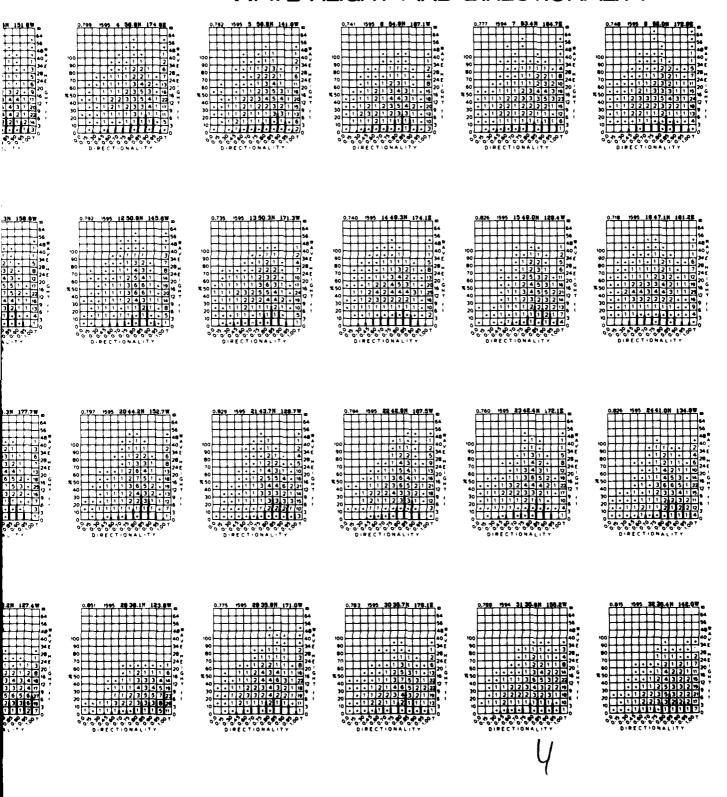
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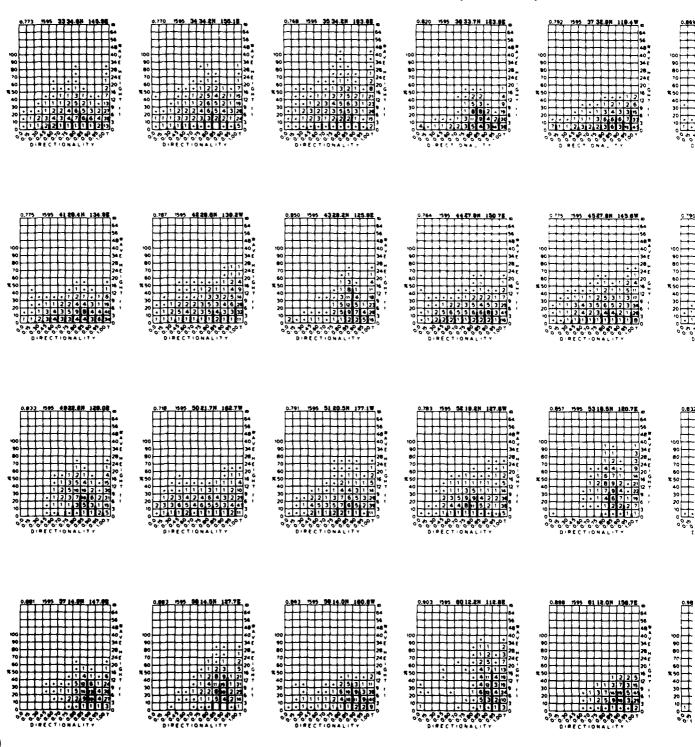
### **NOVEMBER**



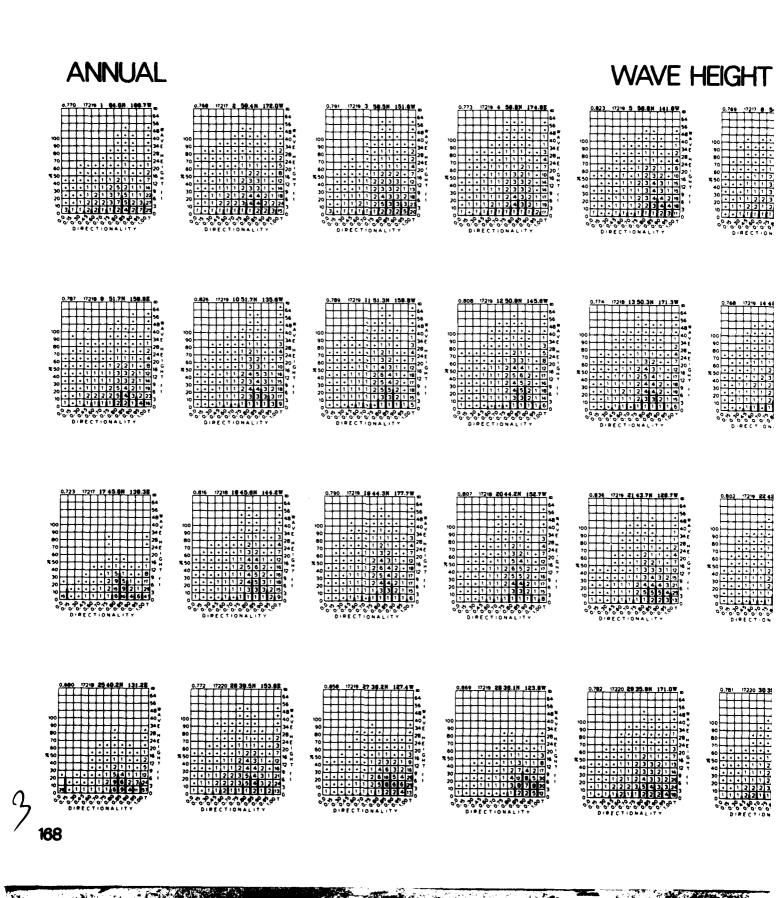
Milese Time

### **DECEMBER** WAVE HEIGHT 0.756 1365 1 00.0N 100.7W 04.0N 100.7W 04.0N 100.7W 04.0N 100.7W 04.0N 100.7W 05.0N 0.740 \*995 16 49 5 0.740 1595 14 49 3 0.000 1595 18 45.8N 164.2W 0 1 0.784 595 22 42 9 0.747 999 20 30 5H 153.8E 0 64 8 8 9 5H 153.8E 0 64 0.783 1999 30 38.78

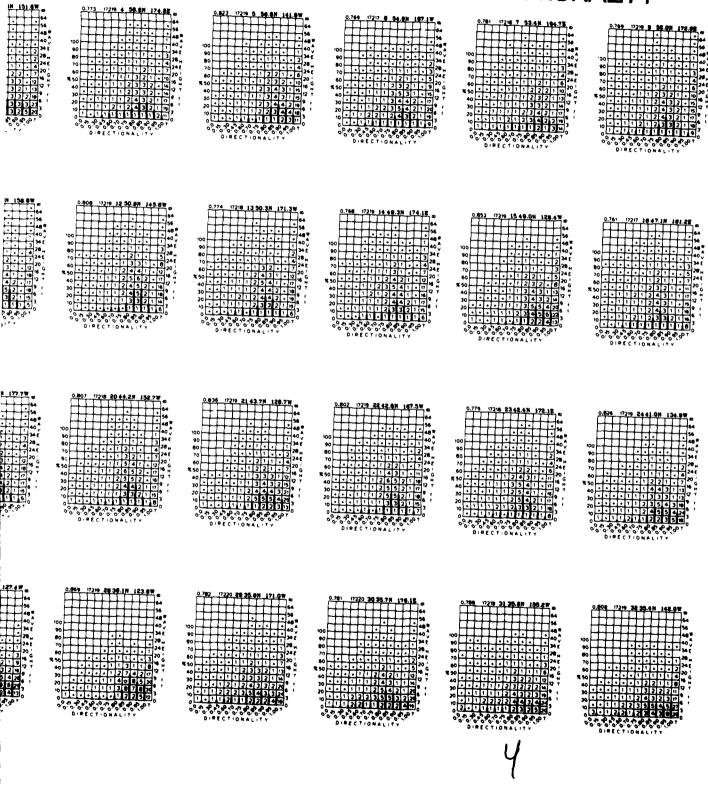




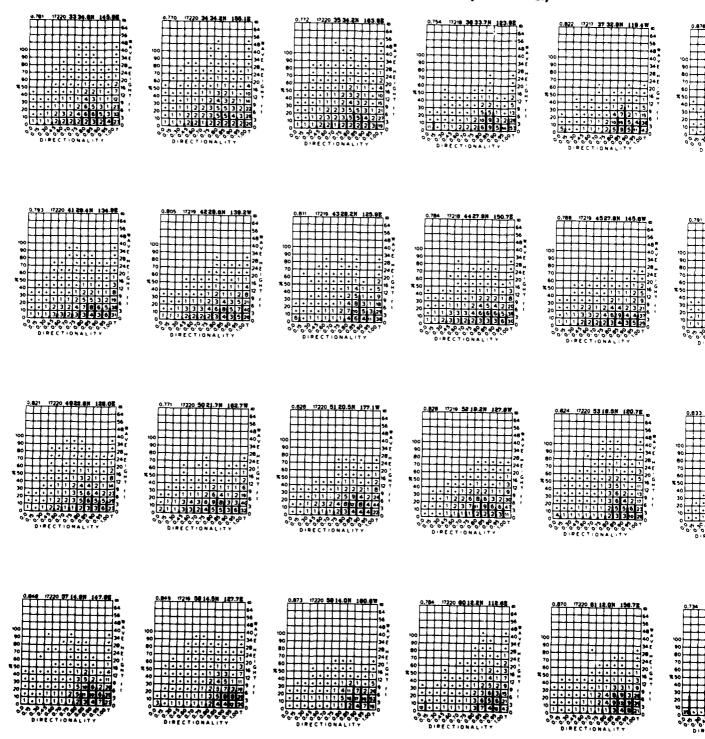
### RECTIONALITY (Cont'd) DECEMBER 167



# WAVE HEIGHT AND DIRECTIONALITY

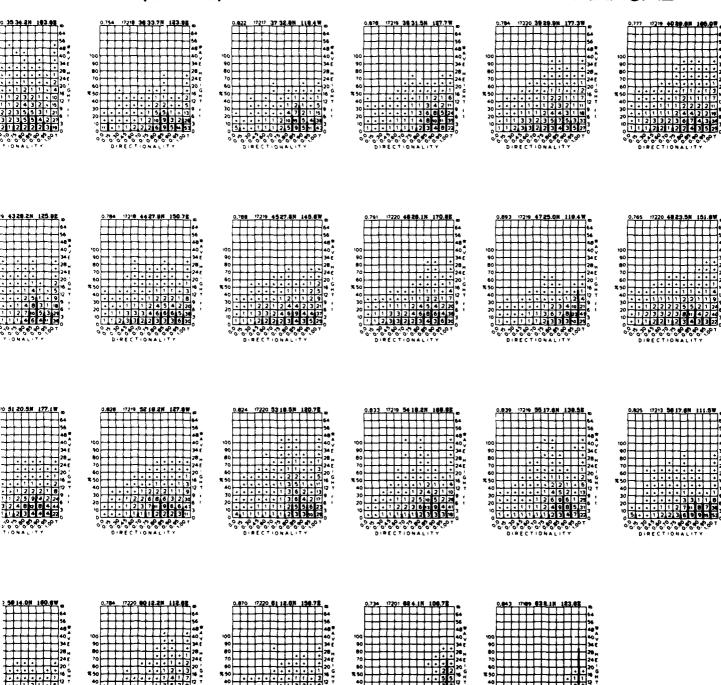


# WAVE HEIGHT AND DIRECTIONALITY (Cont'd)

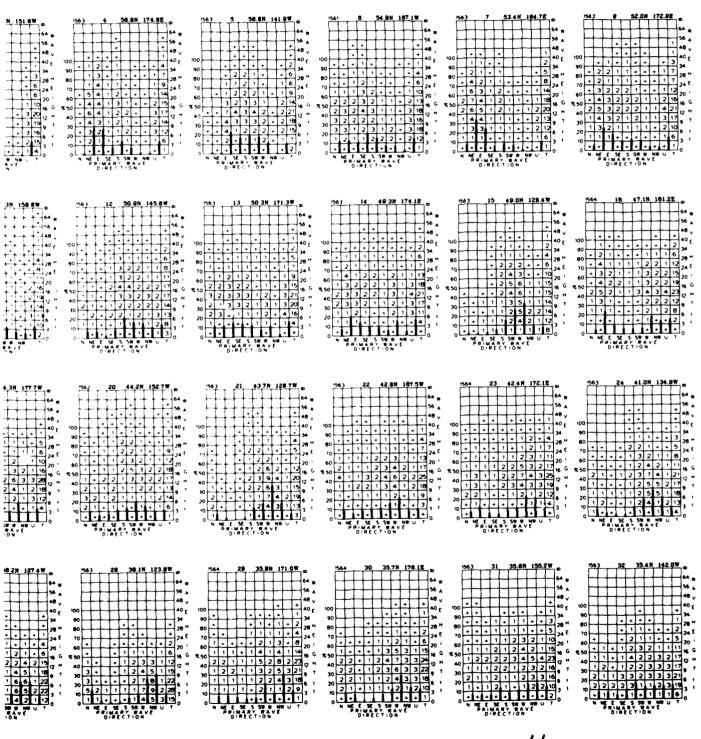


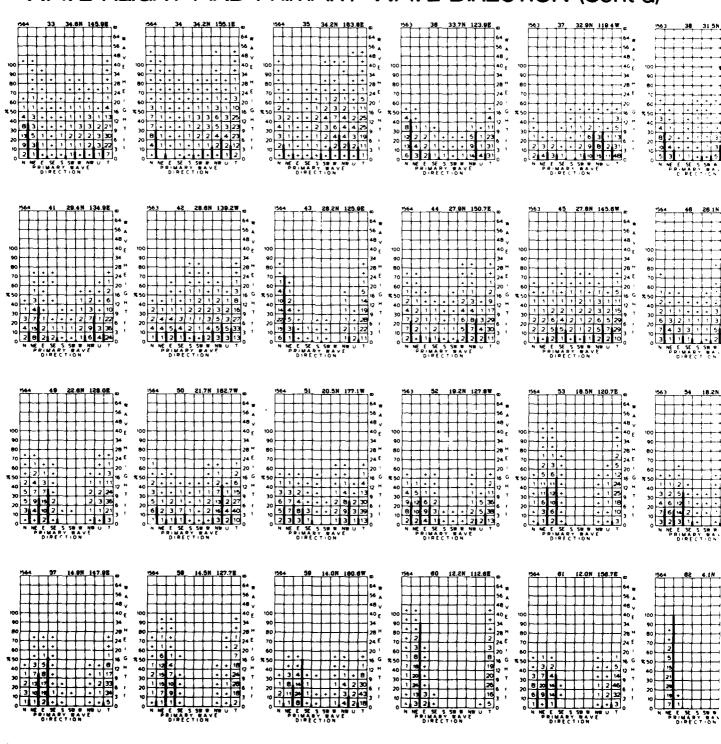
# CTIONALITY (Cont'd)

## **ANNUAL**



# **JANUARY** WAVE HEIGHT AND PRIMAR <del>700</del> ک

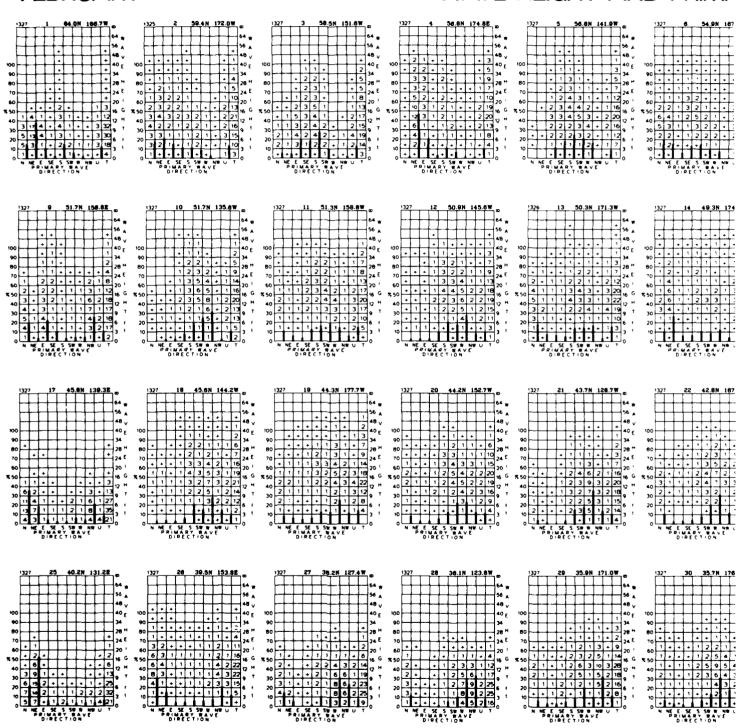


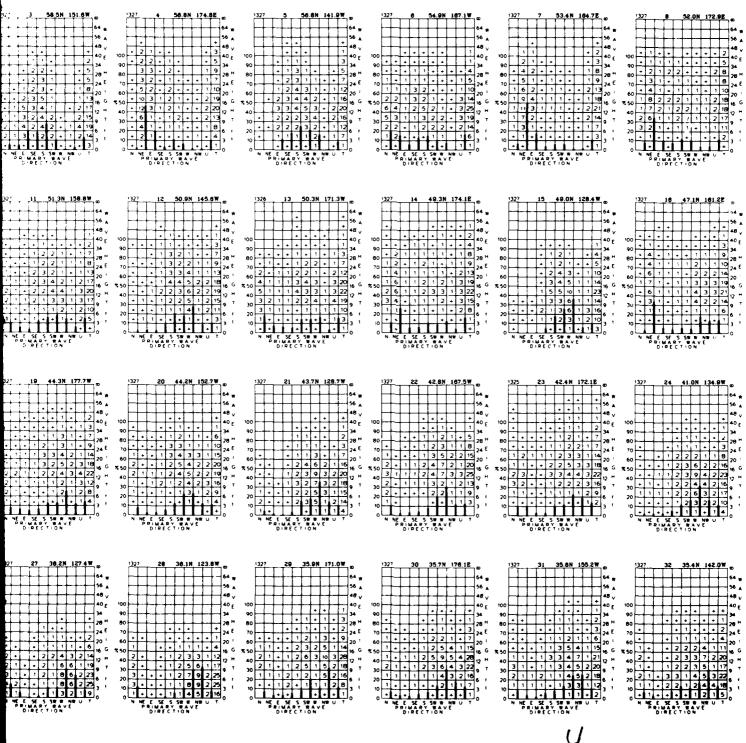


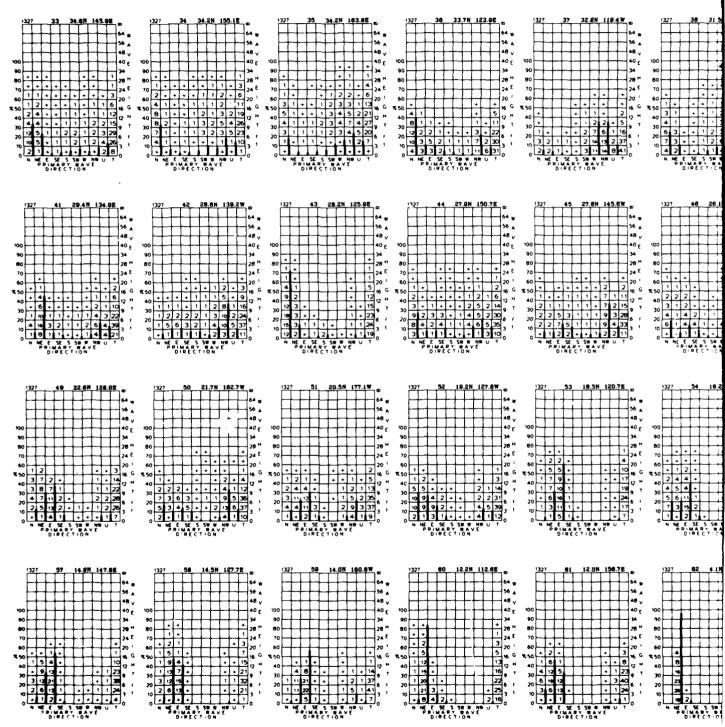
# IMARY WAVE DIRECTION (Cont'd) **JANUARY**

#### **FEBRUARY**

#### WAVE HEIGHT AND PRIMA

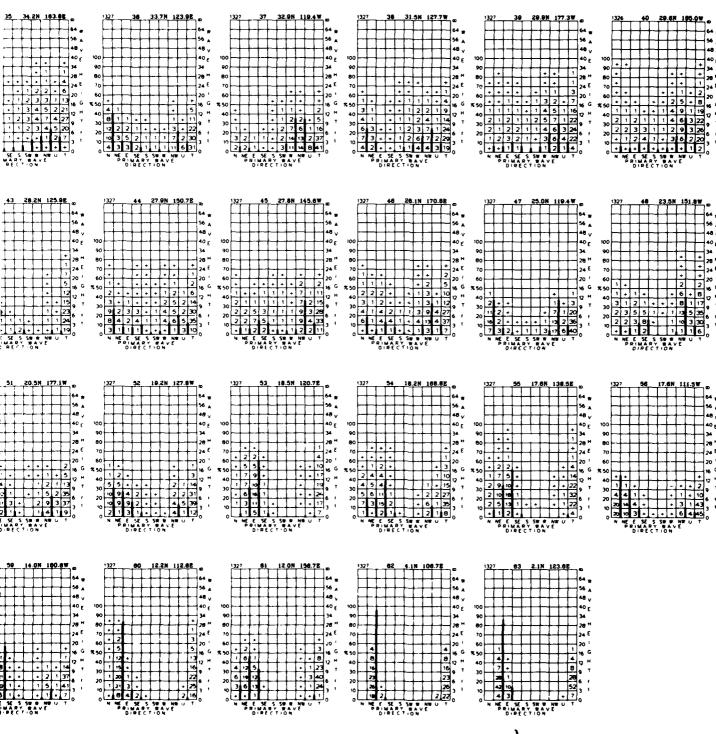




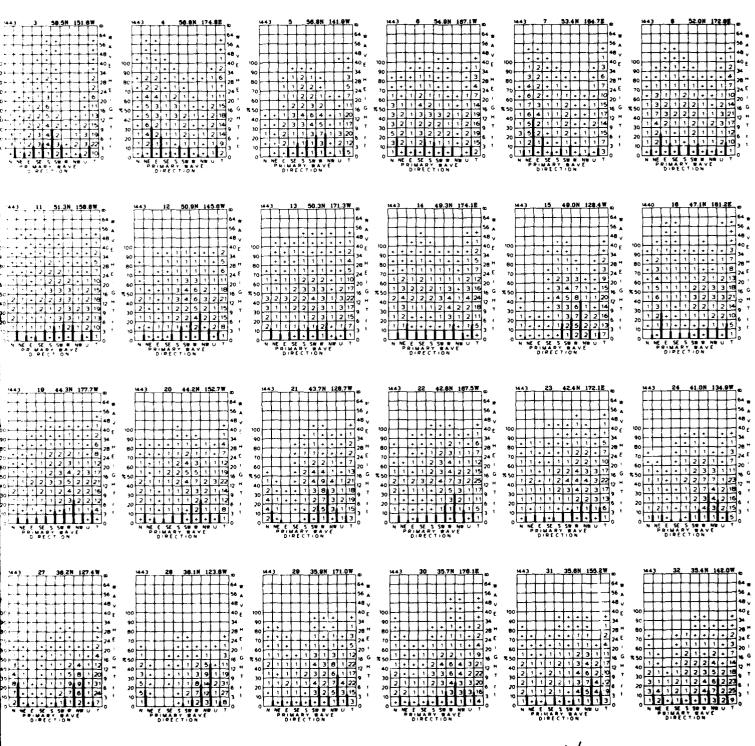


# 1ARY WAVE DIRECTION (Cont'd)

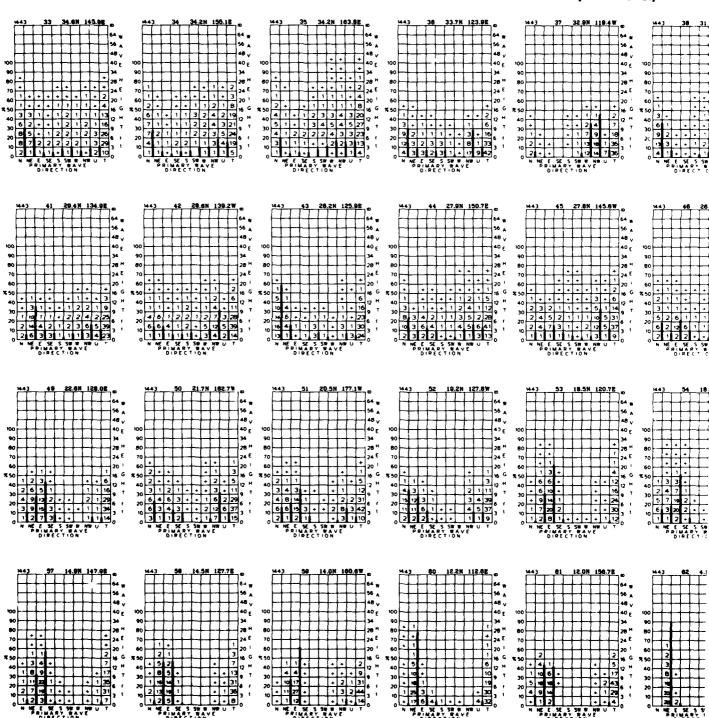
## **FEBRUARY**



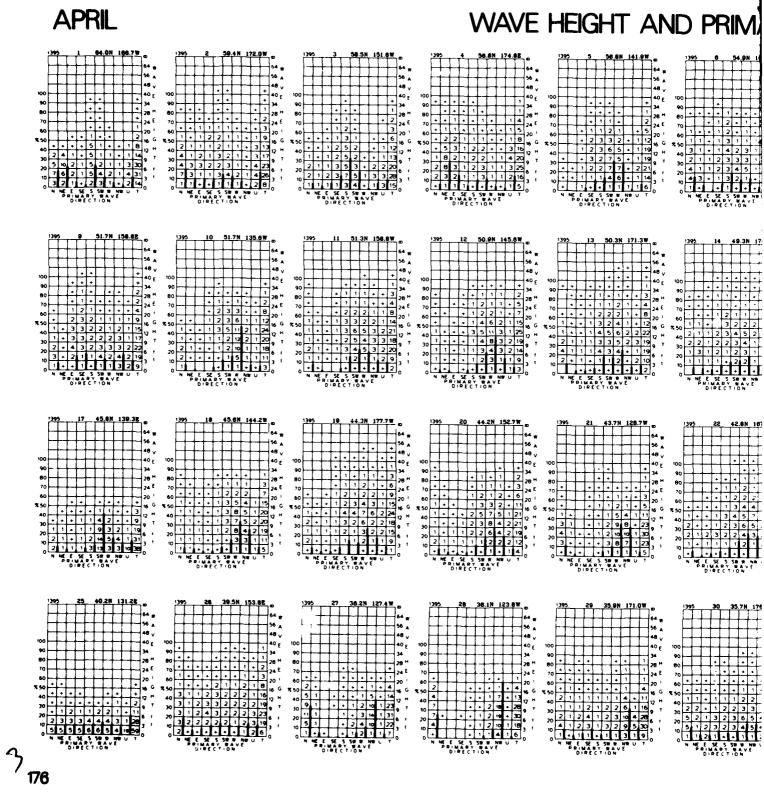
# **MARCH** WAVE HEIGHT AND PRIMA 20 1 40 E 34 28 H 24 E

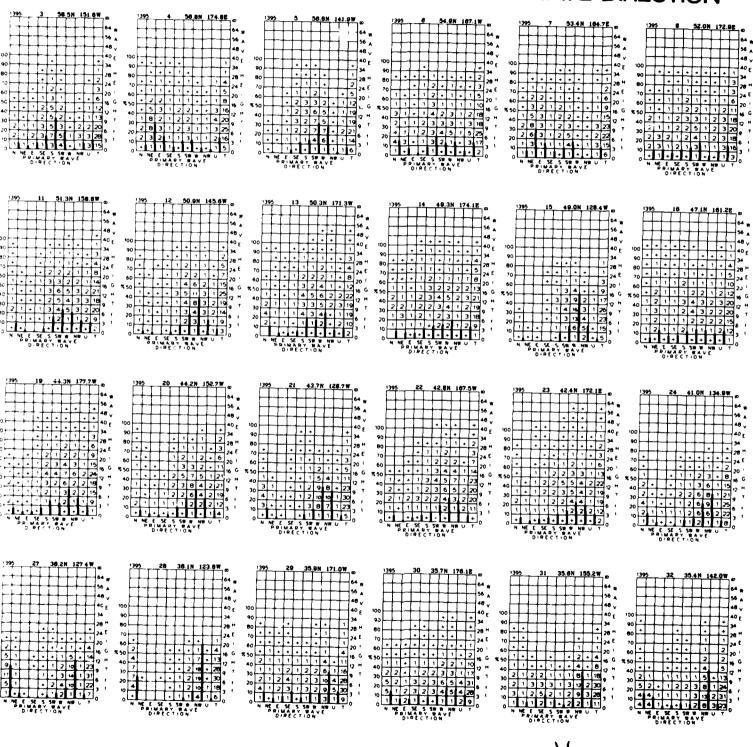


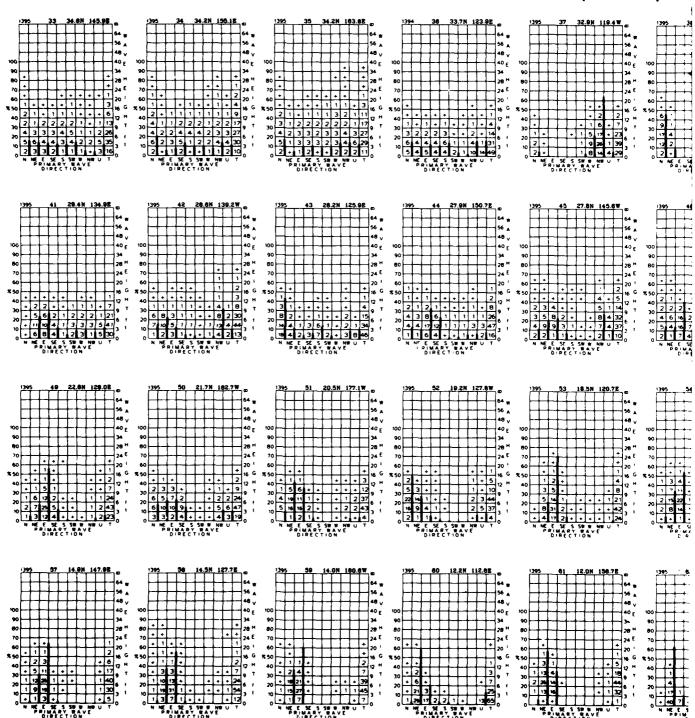
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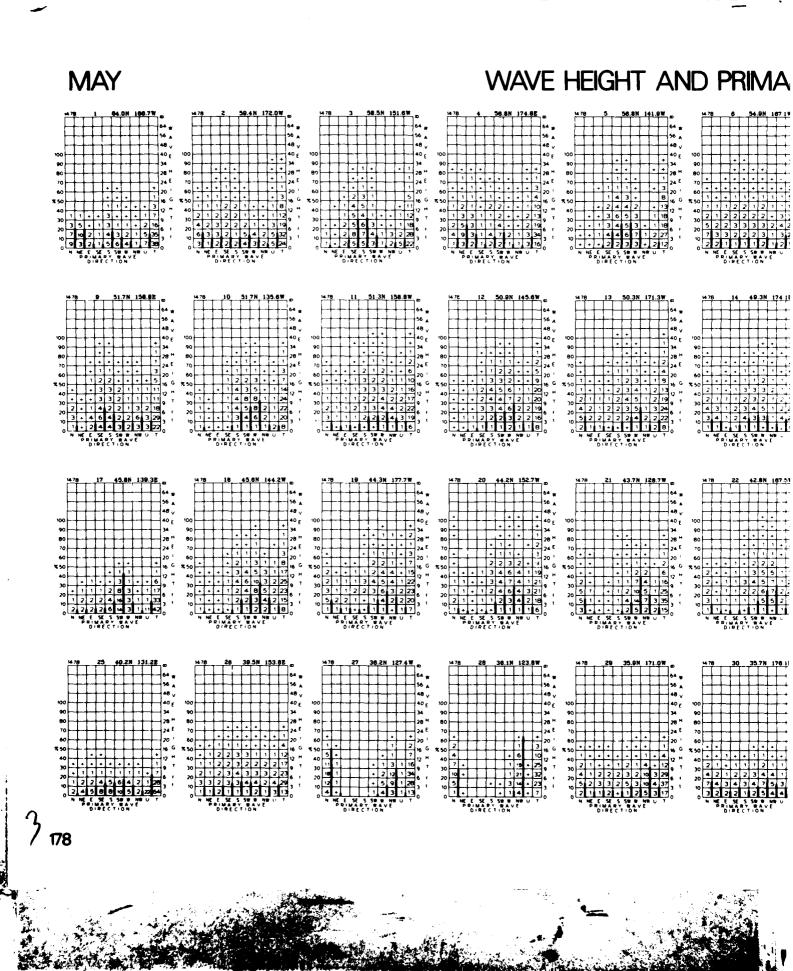
# 1ARY WAVE DIRECTION (Cont'd) **MARCH** 48 v 175

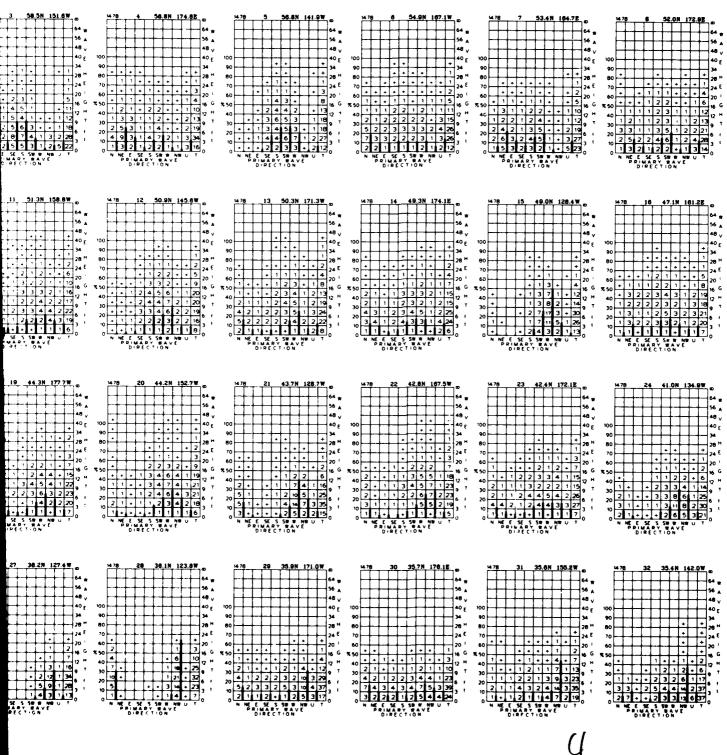


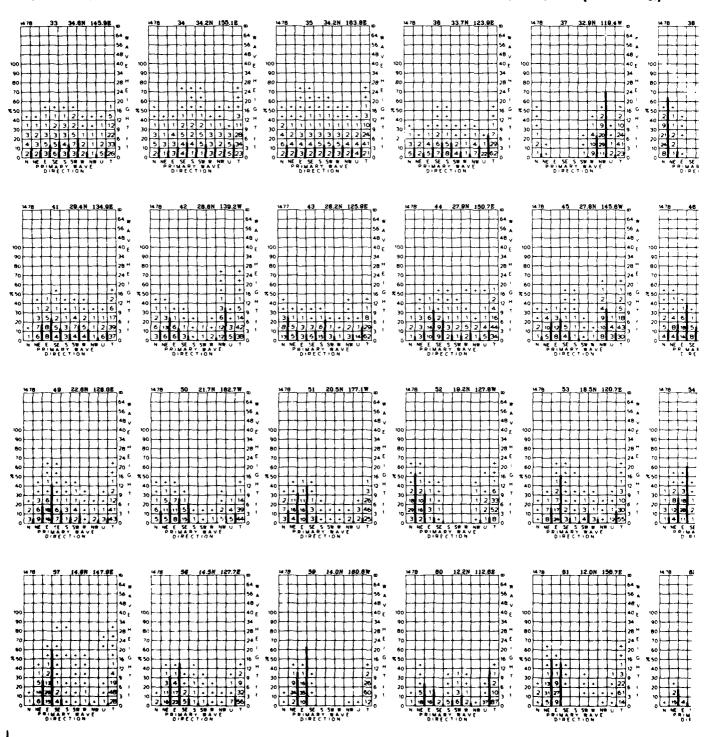




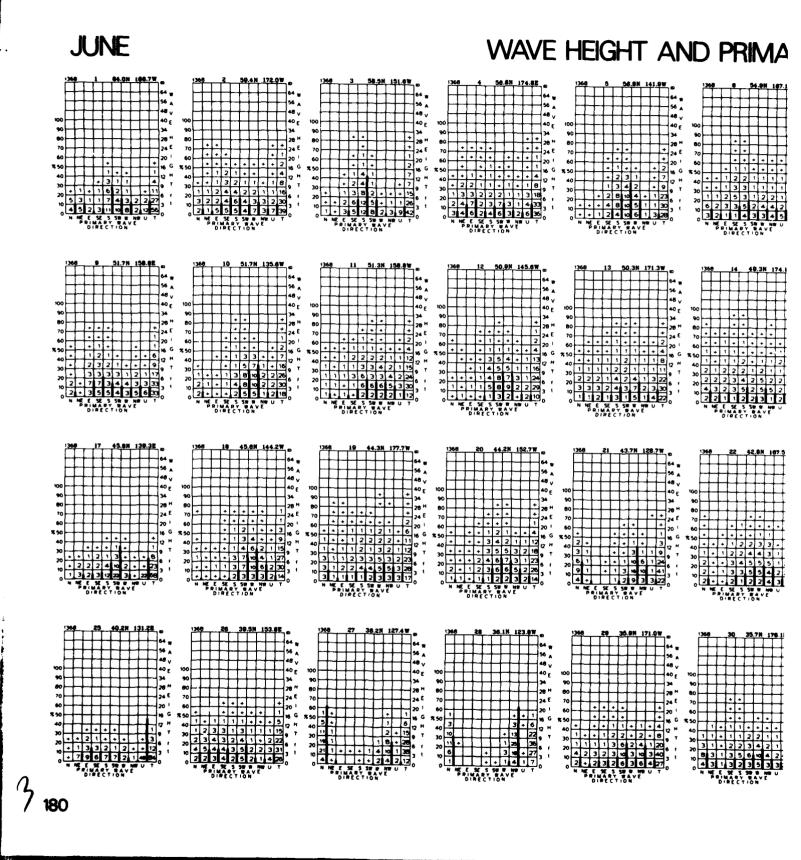
# IMARY WAVE DIRECTION (Cont'd) 177

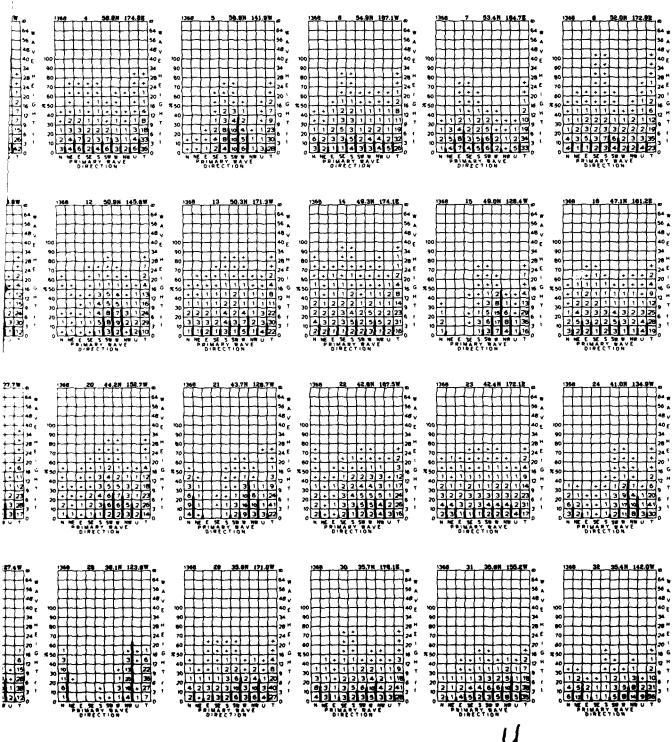


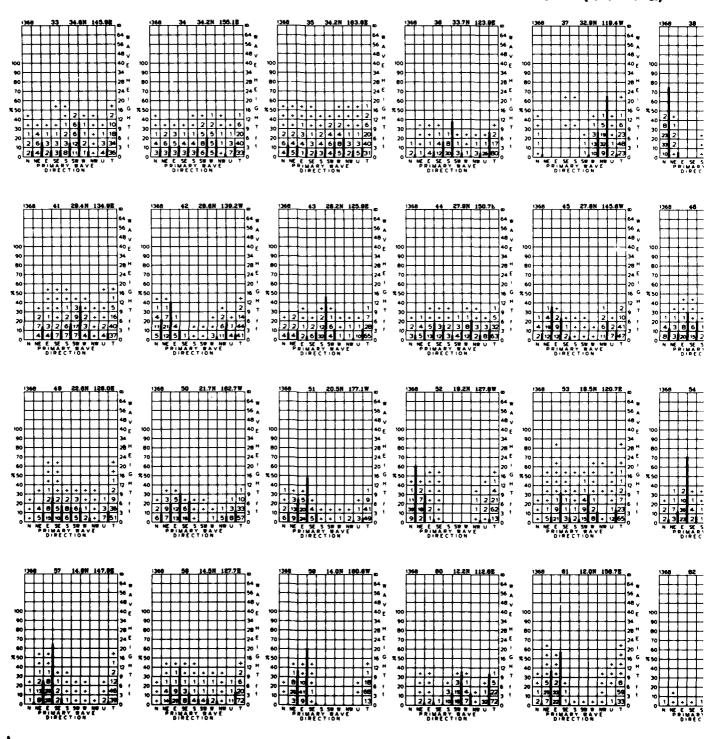




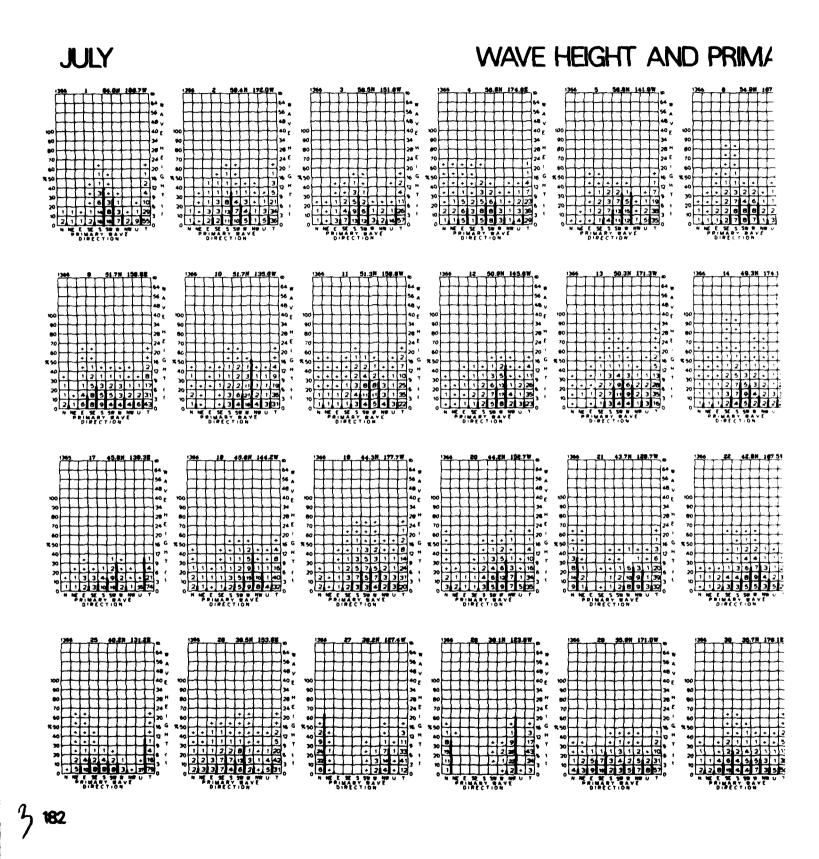
# 1ARY WAVE DIRECTION (Cont'd) MAY

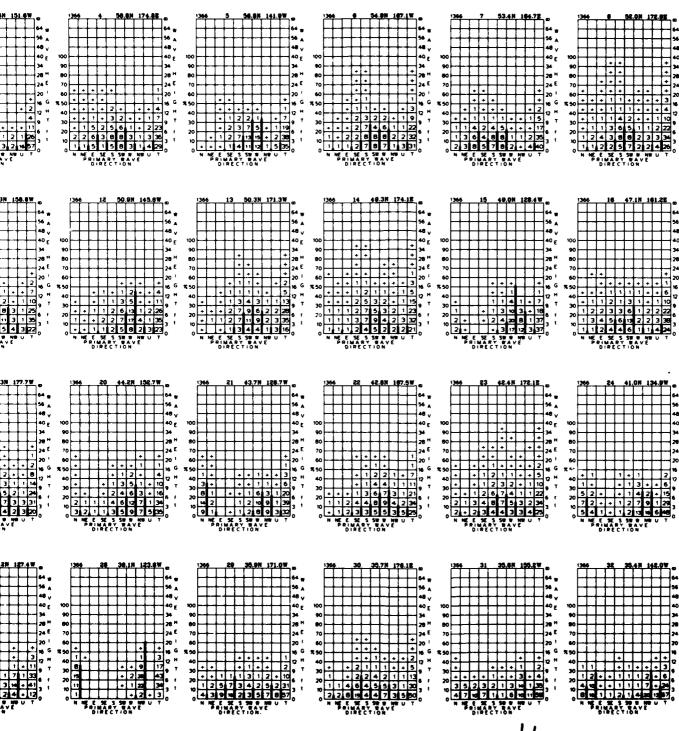


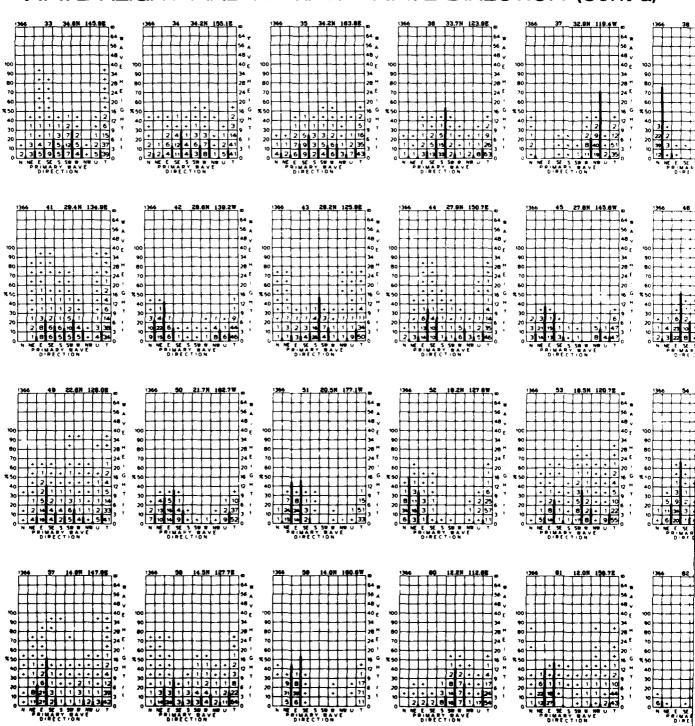




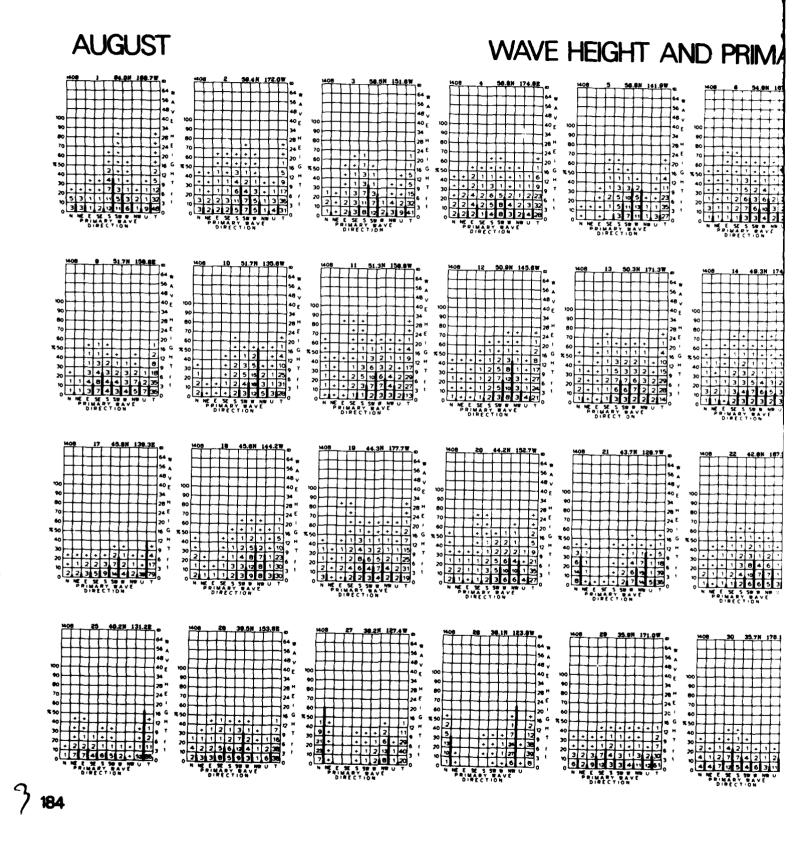
# MARY WAVE DIRECTION (Cont'd) JUNE 13 20 4 + + + + 1 41 3 9 24 5 + + 1 2 3 49 3 REE SES SW W NW U T 0 IM C T 1 DN

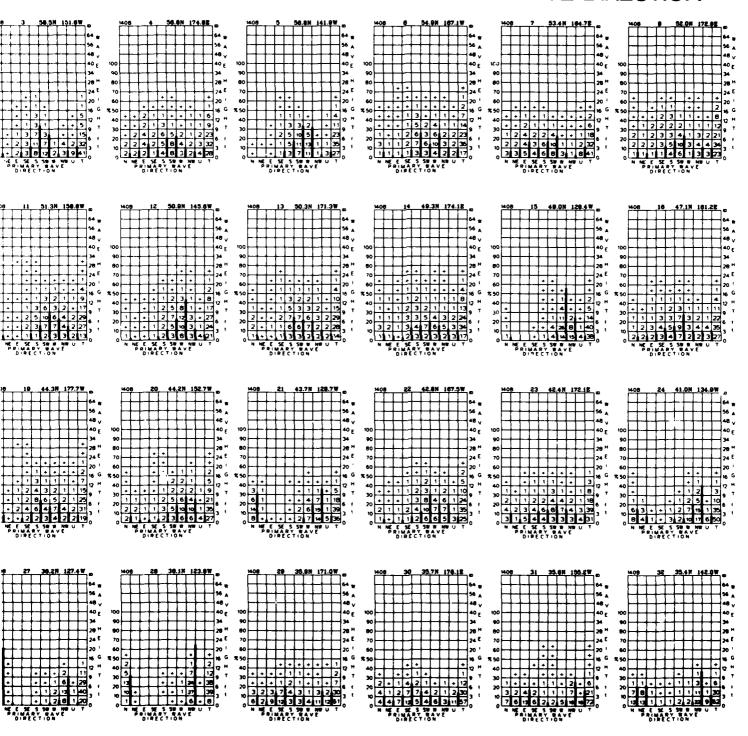


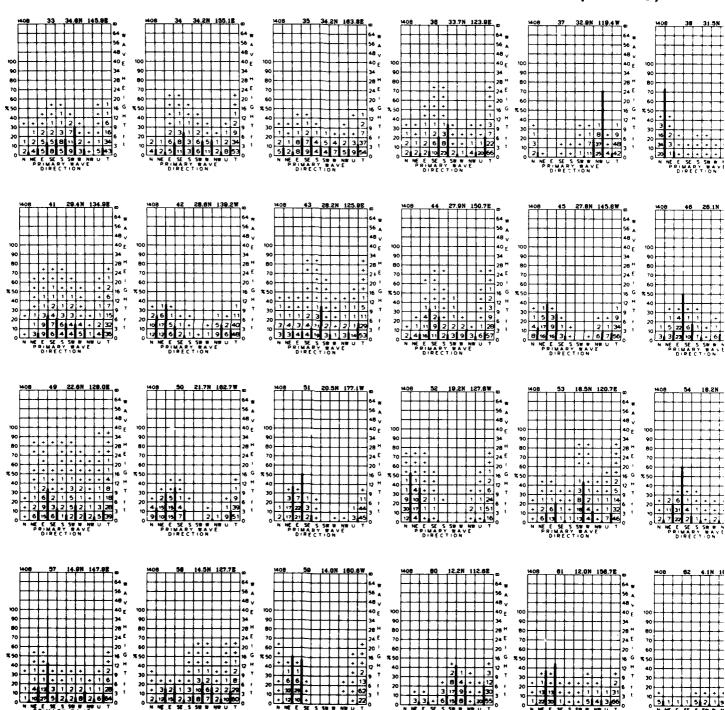




# ARY WAVE DIRECTION (Cont'd) JULY





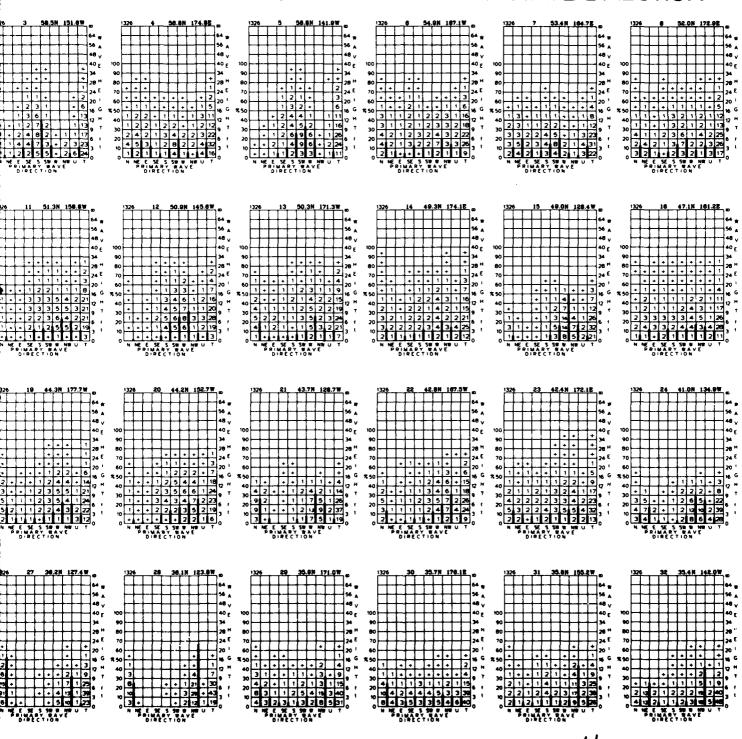


# MARY WAVE DIRECTION (Cont'd) **AUGUST**

## **SEPTEMBER** WAVE HEIGHT AND PRIMAL 24 € 20 ¹ 750 + 1 3 3 3 + 1 7 16 6 40 + 1 3 3 3 + 1 7 16 6 40 + 1 3 4 5 7 1 1 20 9 7 20 (1 + 2 2 5 6 8 3 3 28 6 1 10 + 1 4 5 6 1 2 116 3 3 1 0 NME E SE SE SE W NW U 7 0 NME E SE SE SE W NW U 7

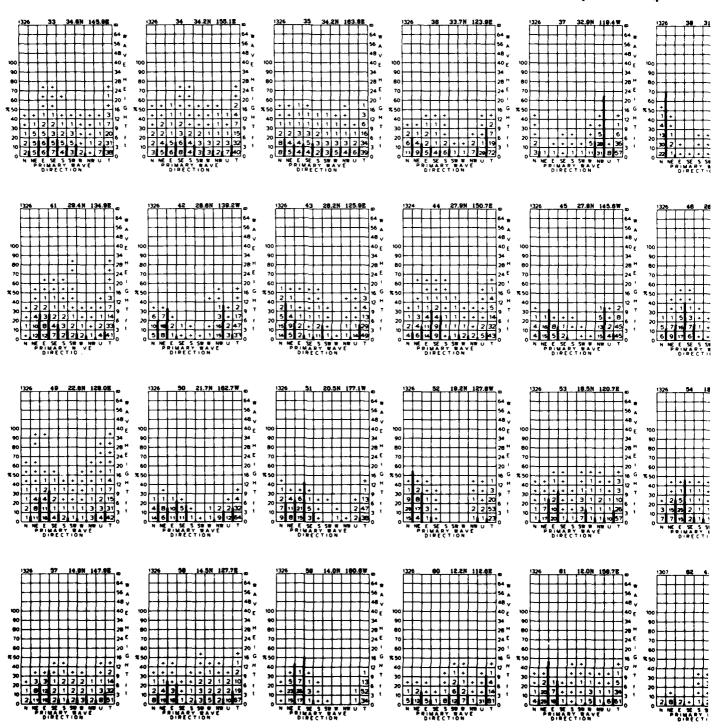
<sup>2</sup>/<sub>7</sub> 186

#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION



f

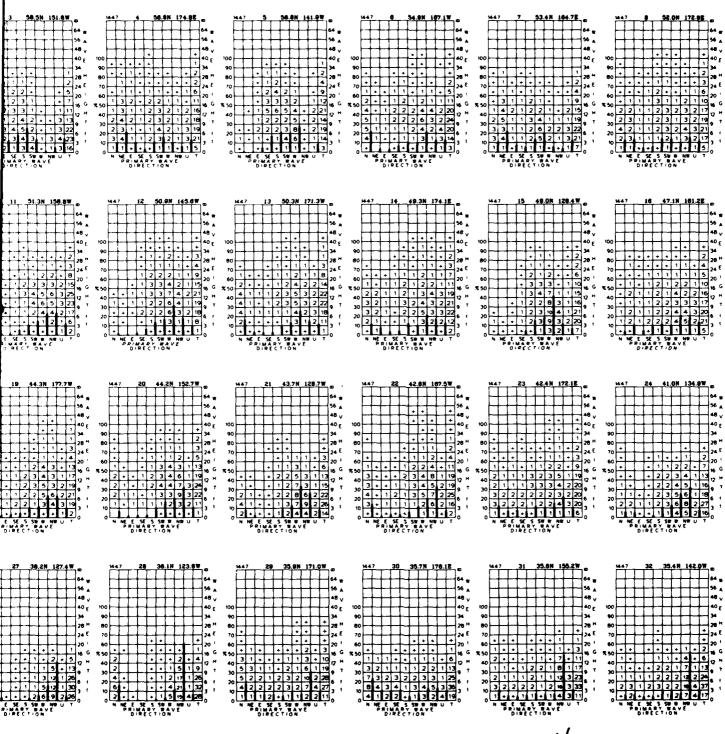
#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION (Cont'd)



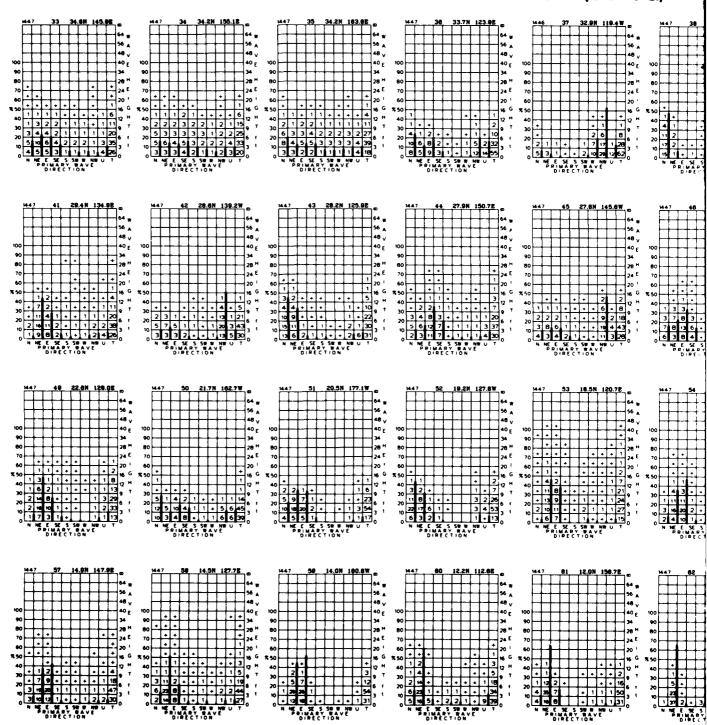
# MARY WAVE DIRECTION (Cont'd) SEPTEMBER

# **OCTOBER** WAVE HEIGHT AND PRIMA 7 188

#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION



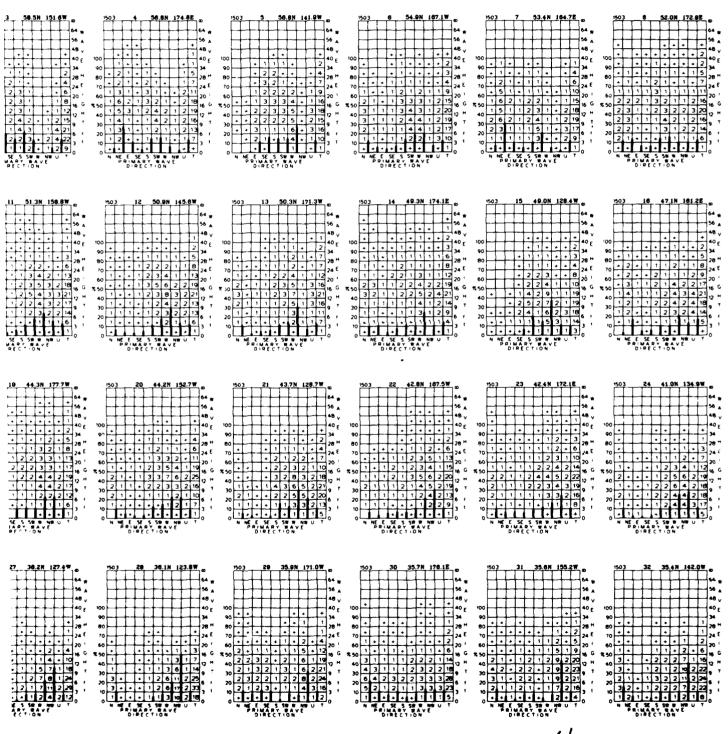
#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION (Cont'd)



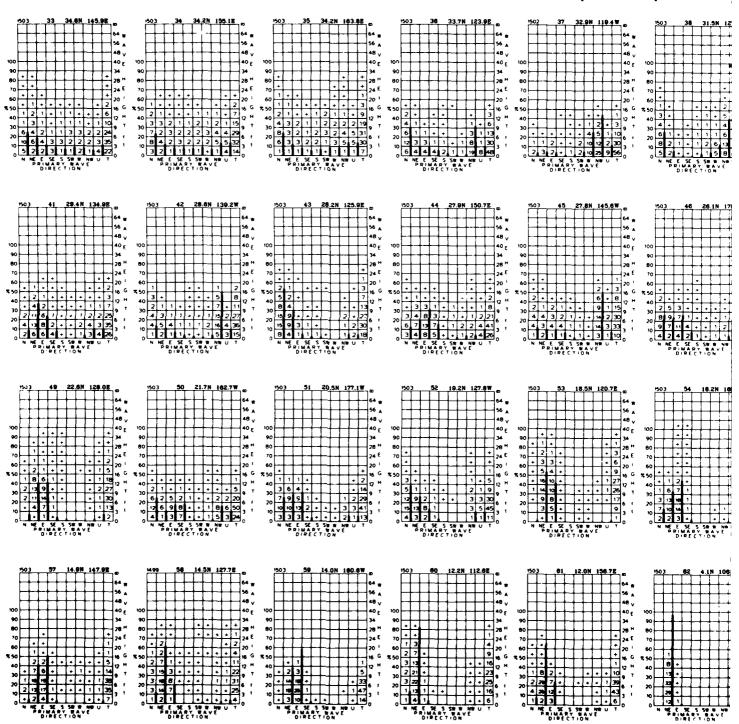
# MARY WAVE DIRECTION (Cont'd) **OCTOBER**

### WAVE HEIGHT AND PRIMAR **NOVEMBER** 56 A 48 V 40 E 34 28 H 34 28 <sup>H</sup> 24 <sup>E</sup> 190

#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION

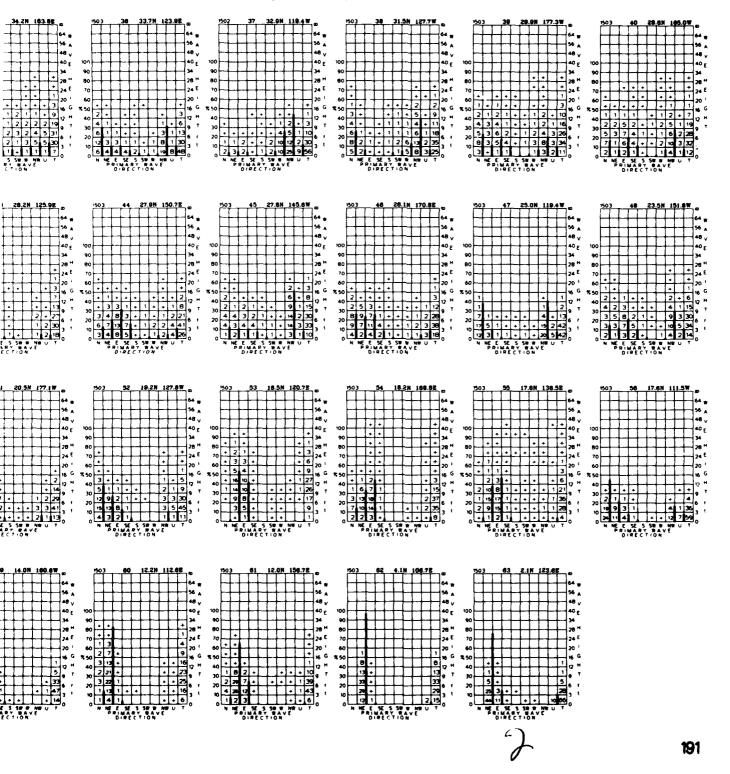


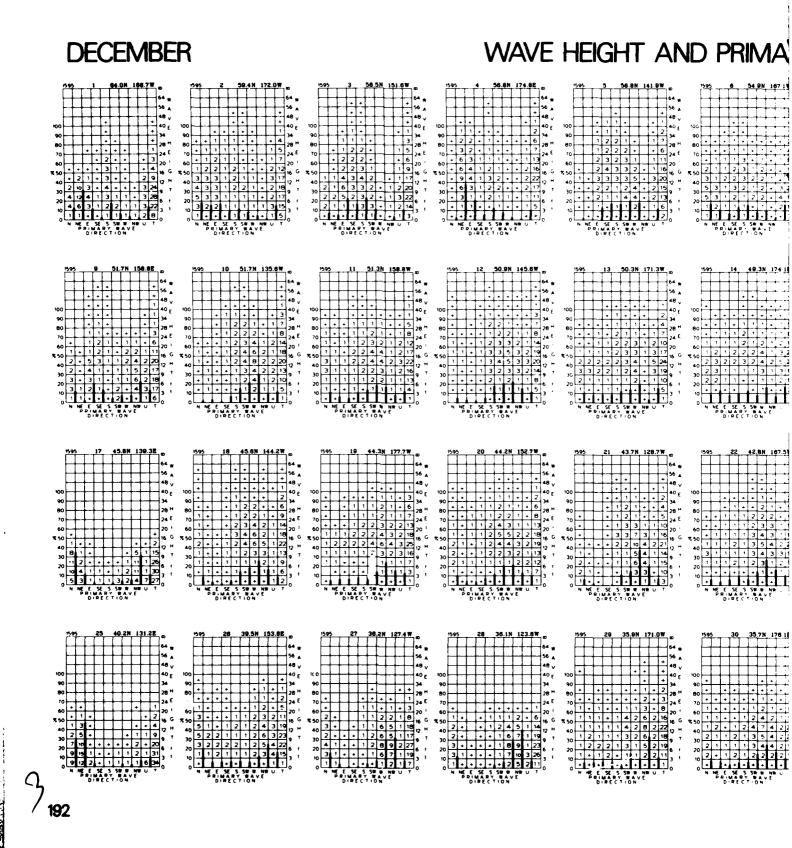
#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION (Cont'd)



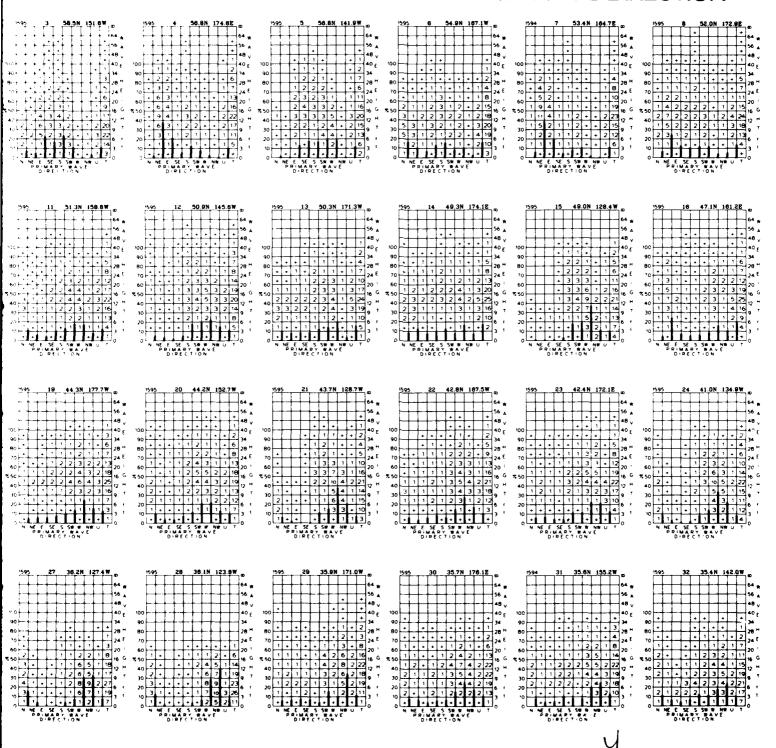
#### ARY WAVE DIRECTION (Cont'd)

#### **NOVEMBER**

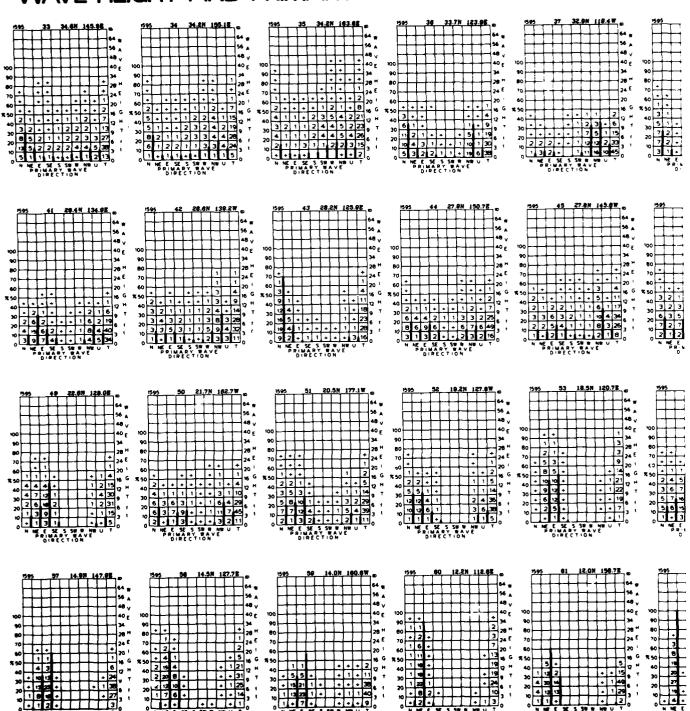




#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION

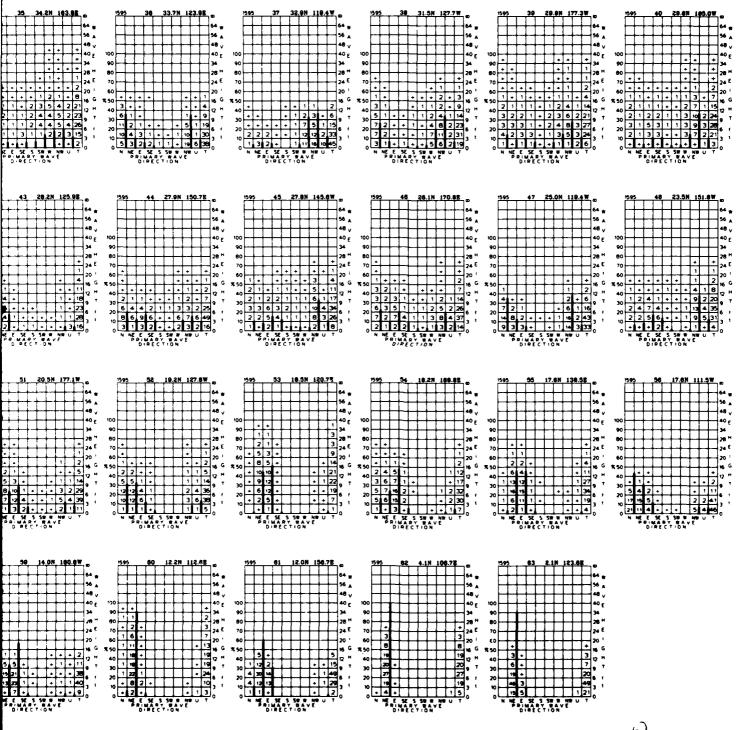


#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION (Cont'd)



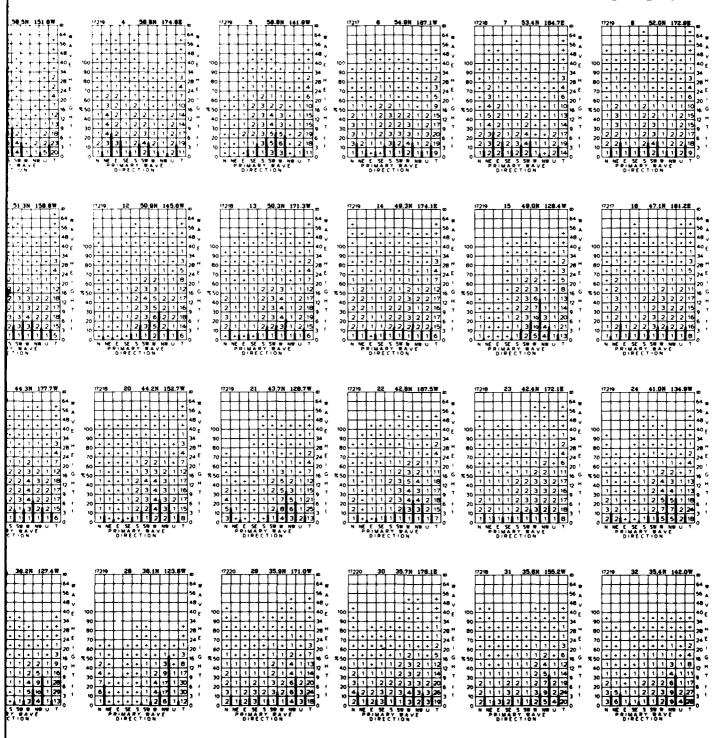
#### MARY WAVE DIRECTION (Cont'd)

#### **DECEMBER**

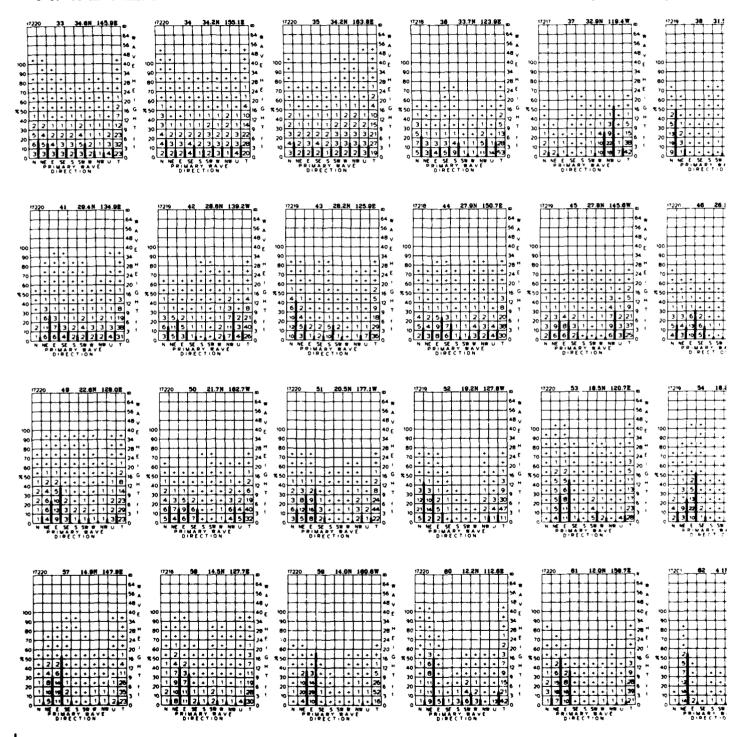


## **ANNUAL** WAVE HEIGHT AND PRIM + 48 y + 40 E + 228 H + 2 24 E + 4 7 16 G 17:18 13 50.3N 171.3W 664 W 66

#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION



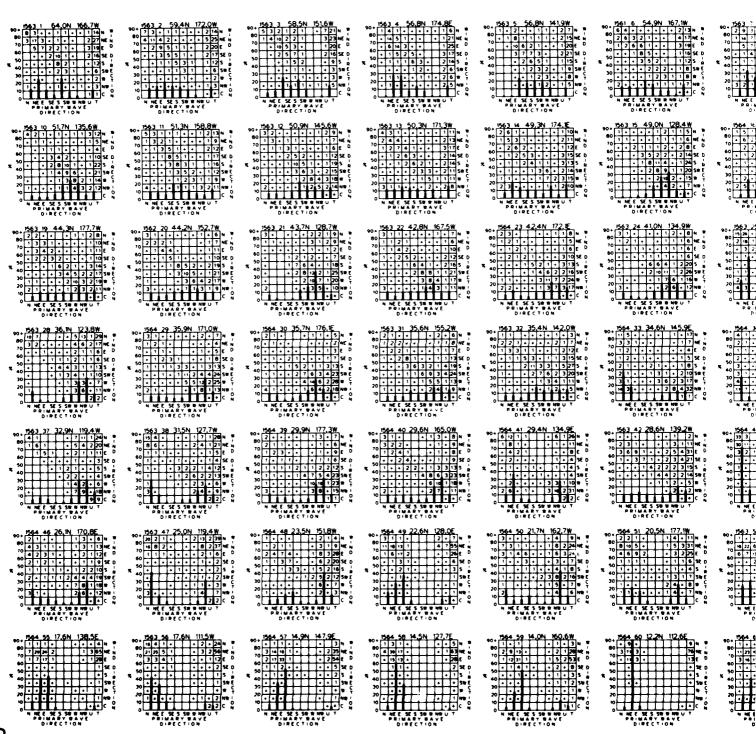
#### WAVE HEIGHT AND PRIMARY WAVE DIRECTION (Cont'd)



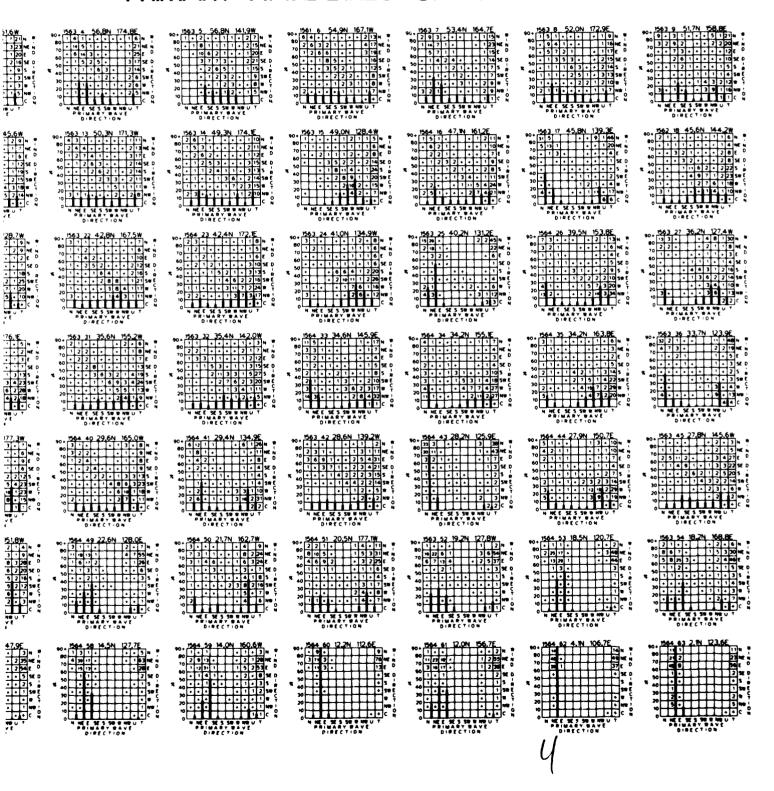
#### **ANNUAL** RY WAVE DIRECTION (Cont'd) 30 33.7N 123.9E m 26 " 17720 46 26 IN 170 BE 0 46 4 40 4 56 A 46 V 40 E 46 V 40 74.5

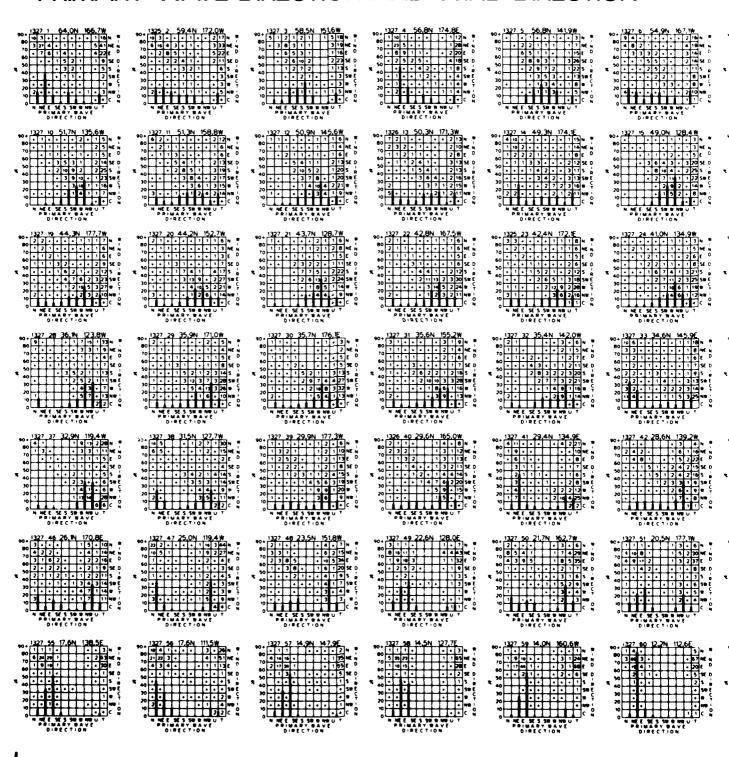
#### **JANUARY**

#### PRIMARY WAVE DIRECTION



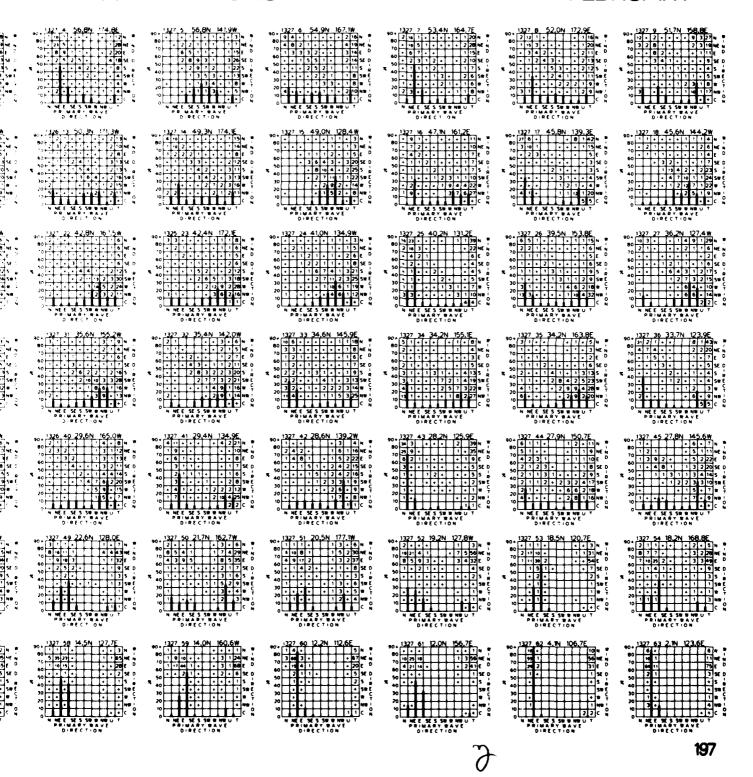
7196





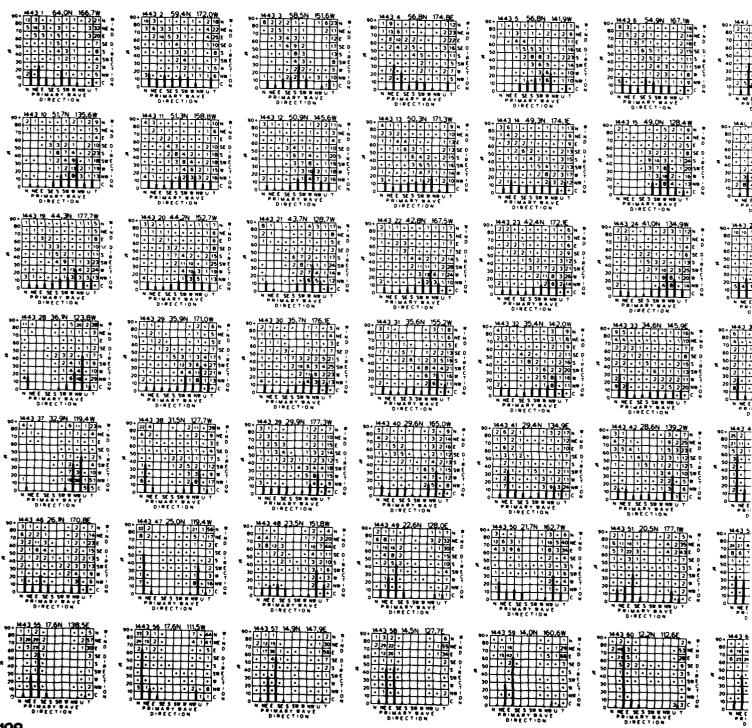
#### N AND WIND DIRECTION

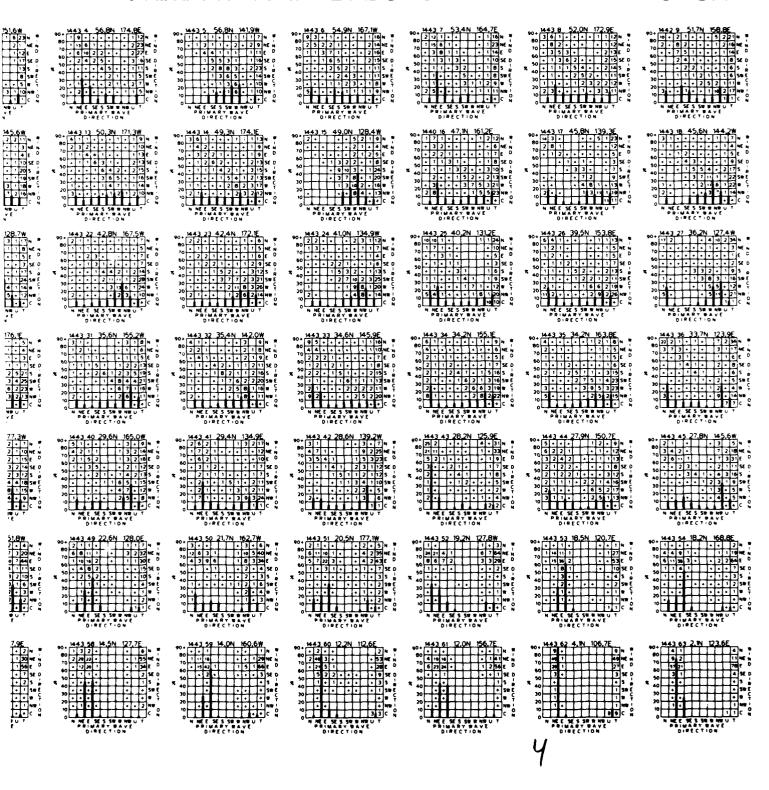
#### **FEBRUARY**

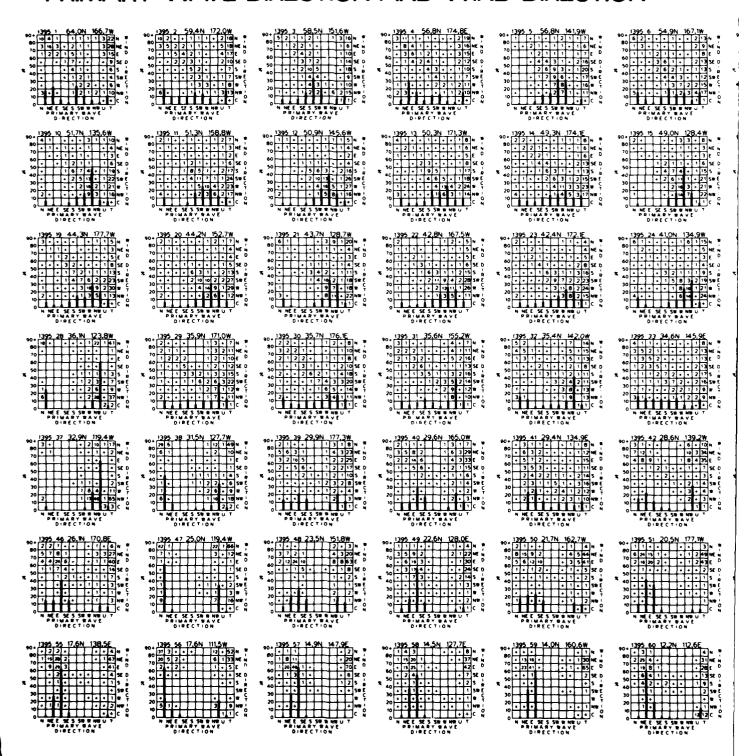


#### **MARCH**

#### PRIMARY WAVE DIRECTION



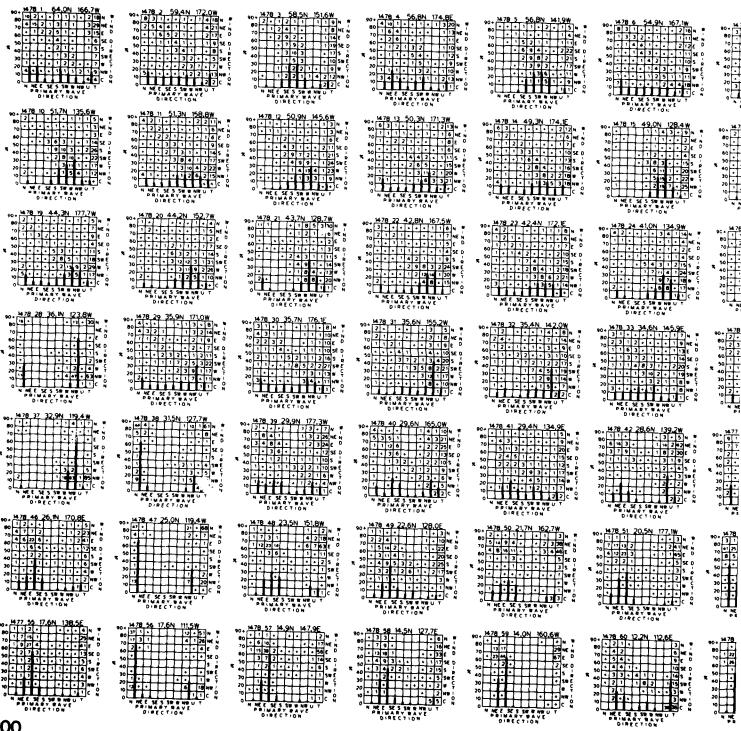




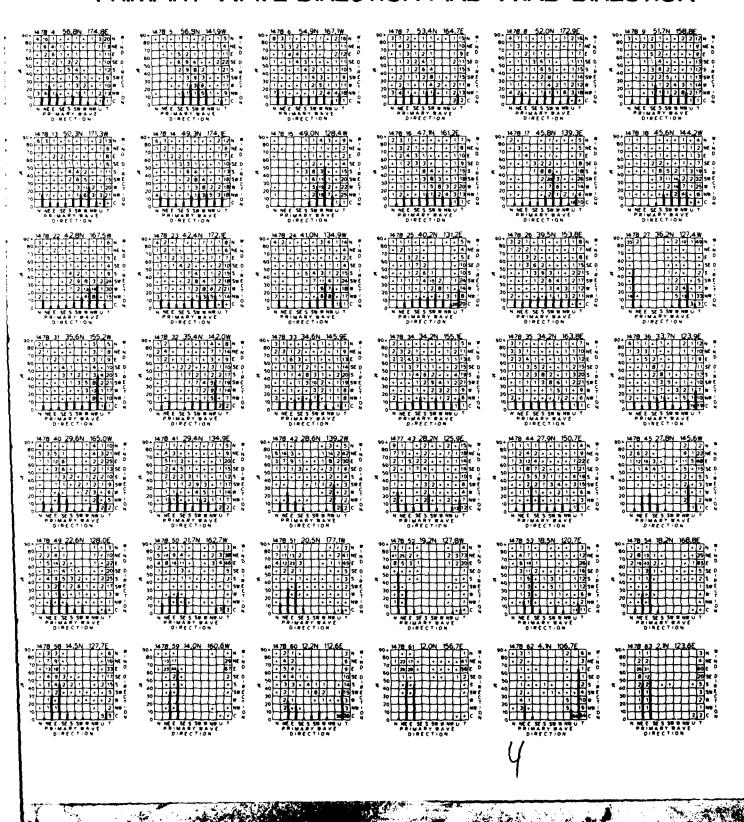
# **APRIL** N AND WIND DIRECTION 199

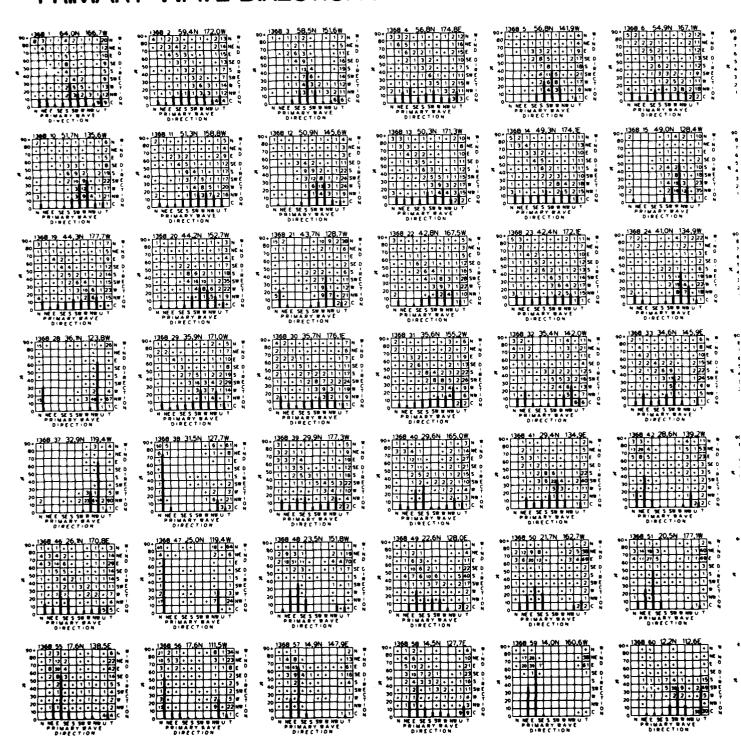
### **MAY**

#### PRIMARY WAVE DIRECTIC



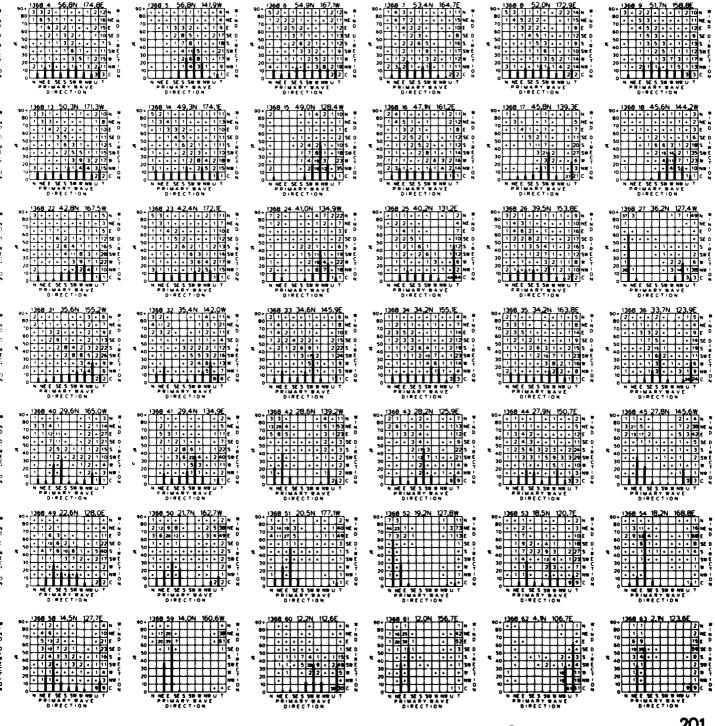
3<sup>200</sup>





#### N AND WIND DIRECTION

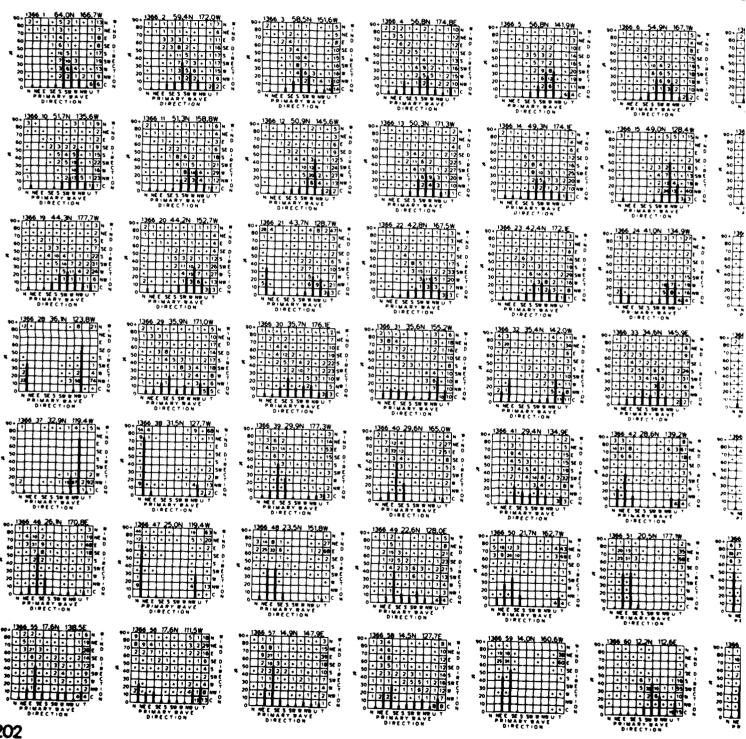
#### JUNE



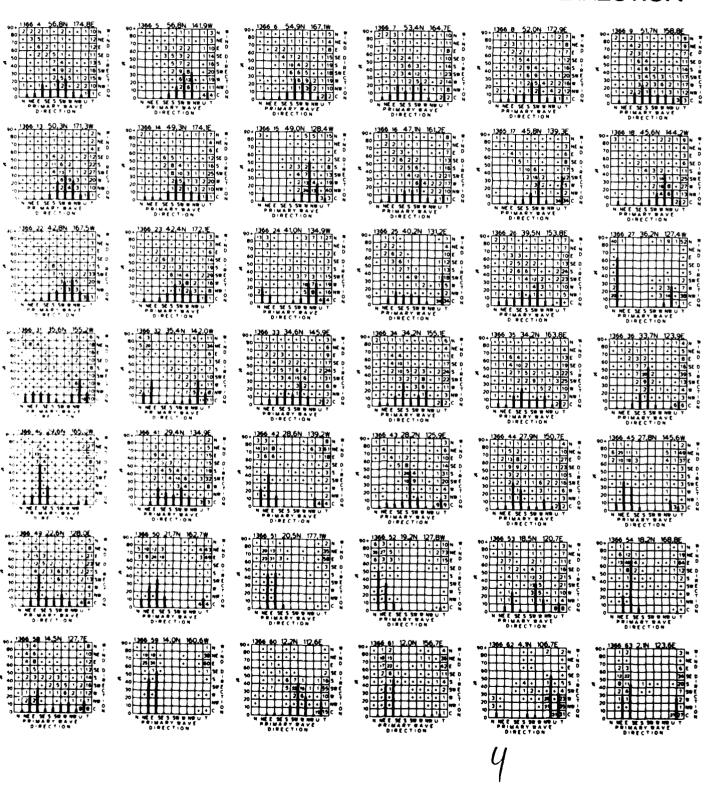
201

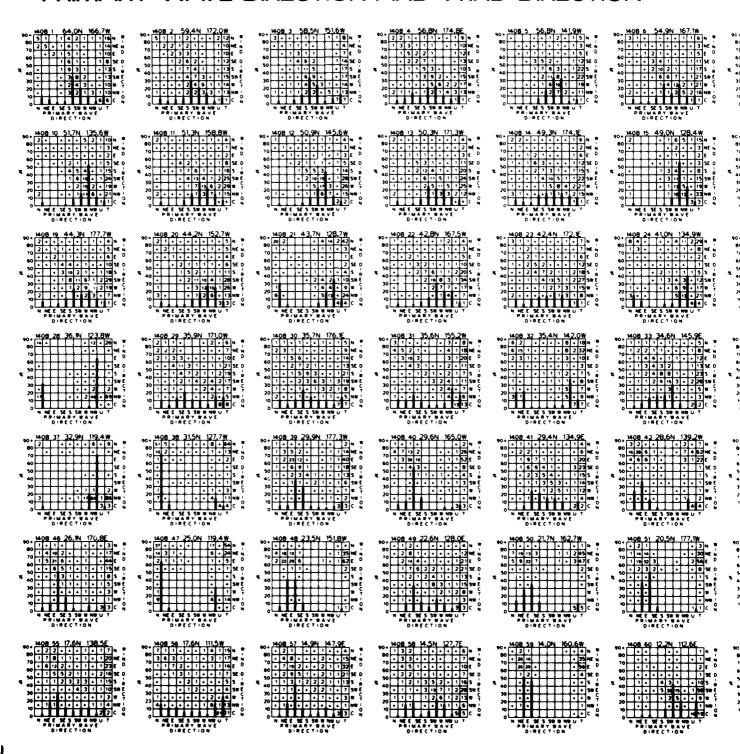
#### JULY

#### PRIMARY WAVE DIRECTIC



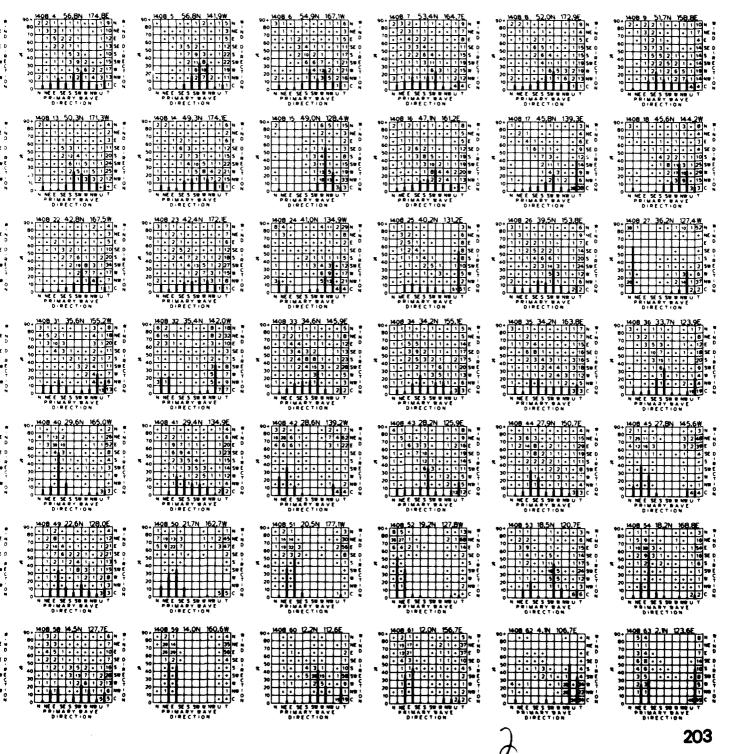
9 202





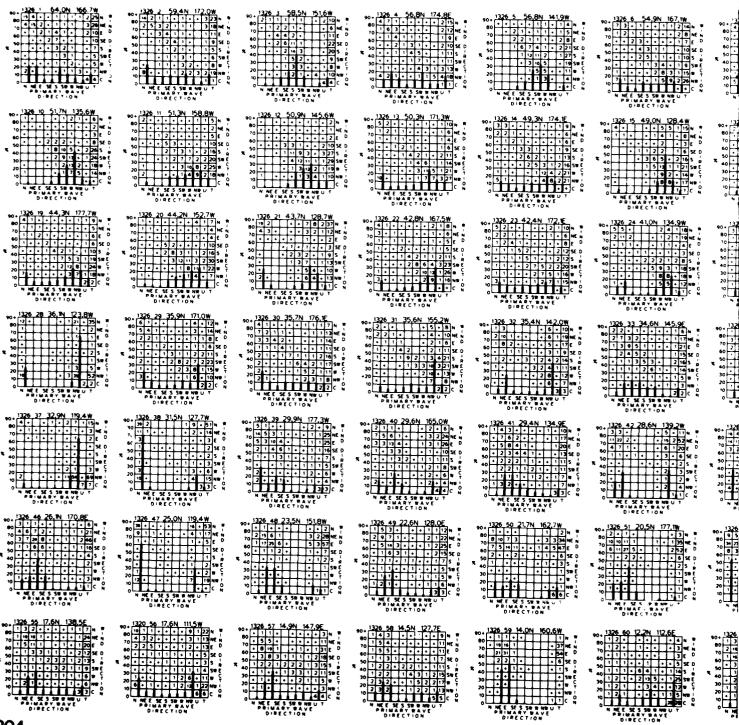
#### N AND WIND DIRECTION

#### **AUGUST**

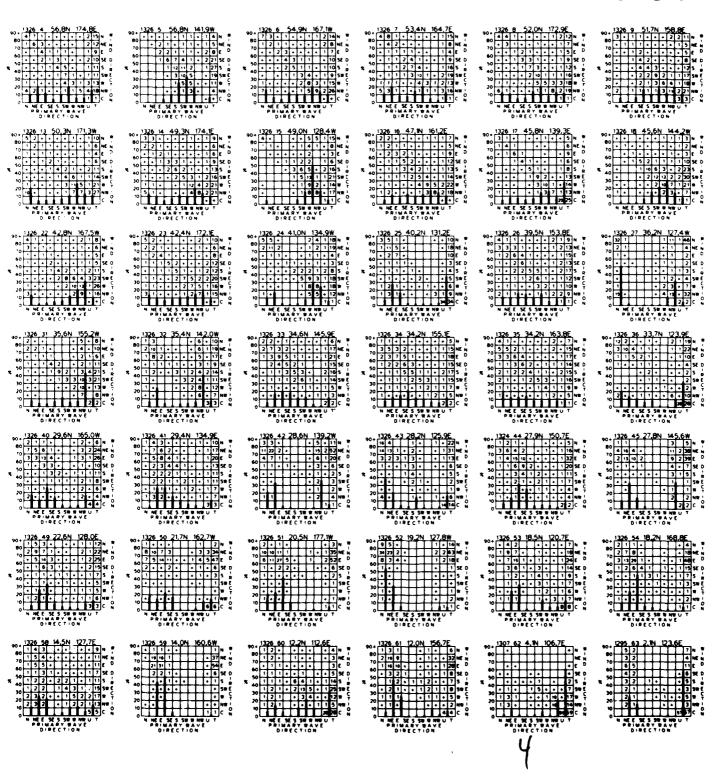


### **SEPTEMBER**

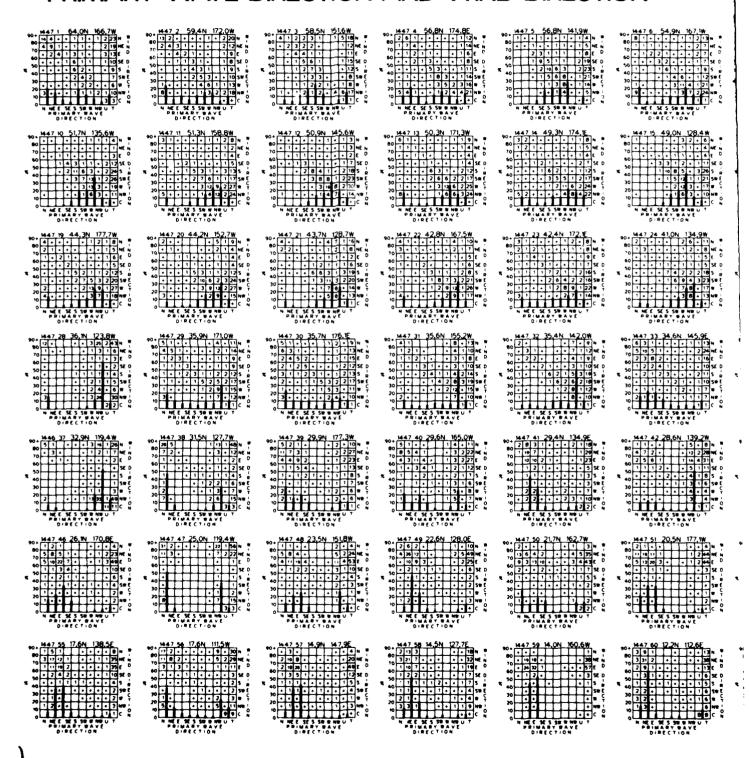
## PRIMARY WAVE DIRECTIO



#### PRIMARY WAVE DIRECTION AND WIND DIRECTION

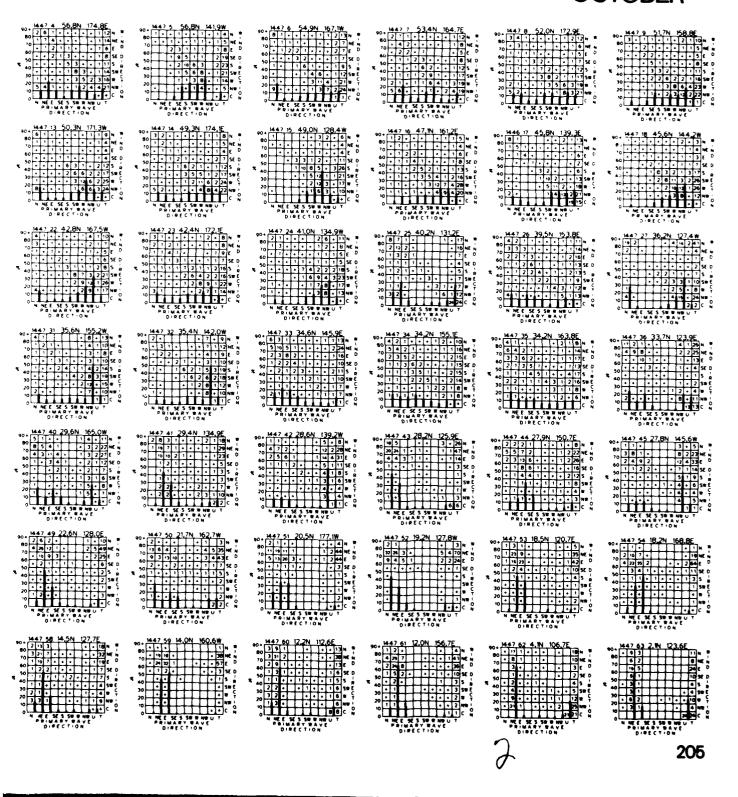


### PRIMARY WAVE DIRECTION AND WIND DIRECTION



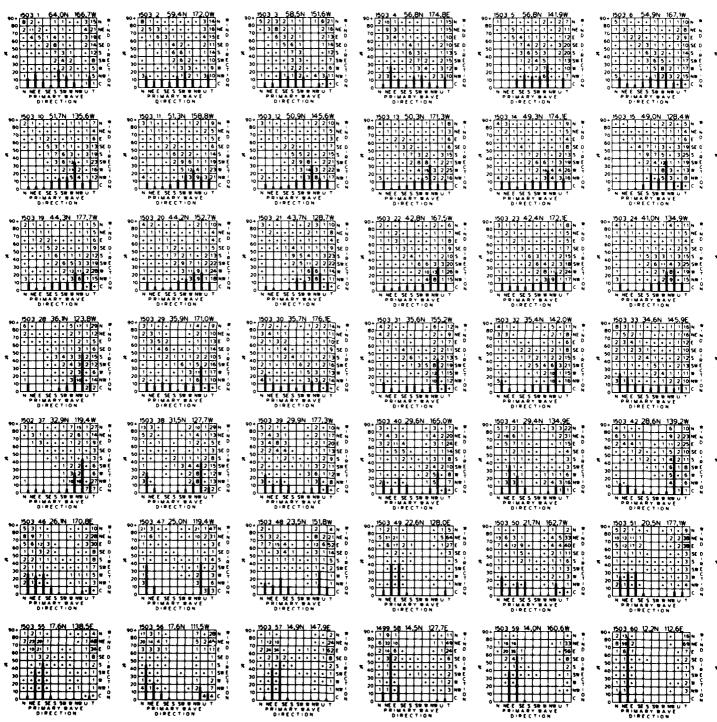
## I AND WIND DIRECTION

### **OCTOBER**

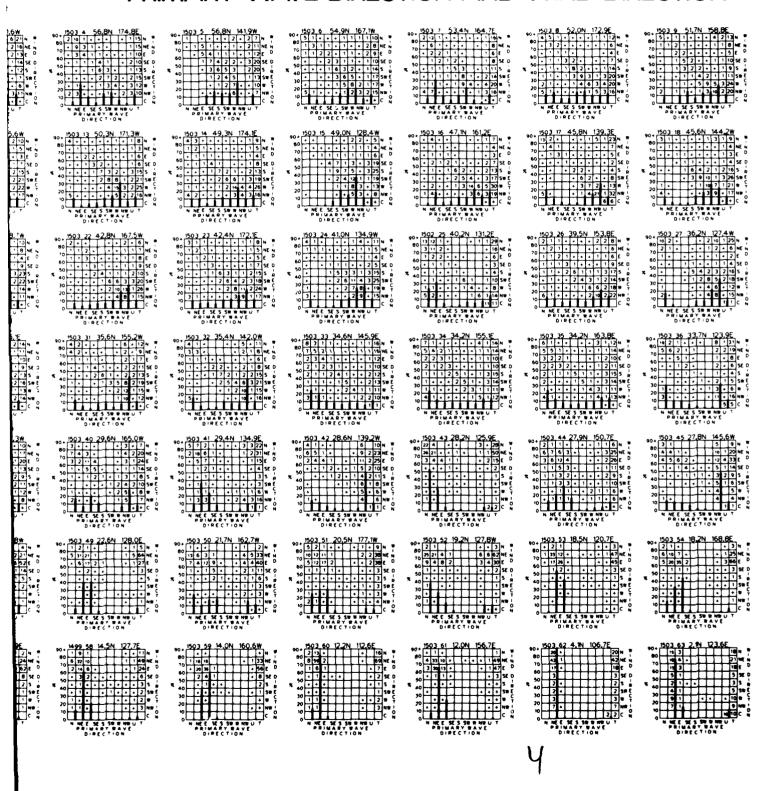


#### **NOVEMBER**

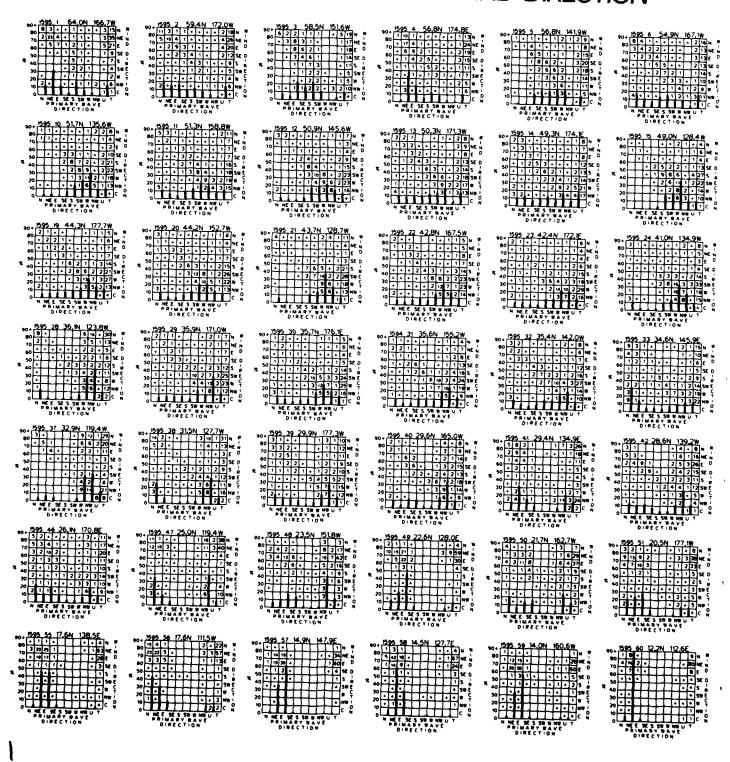
### PRIMARY WAVE DIRECTIO



#### PRIMARY WAVE DIRECTION AND WIND DIRECTION

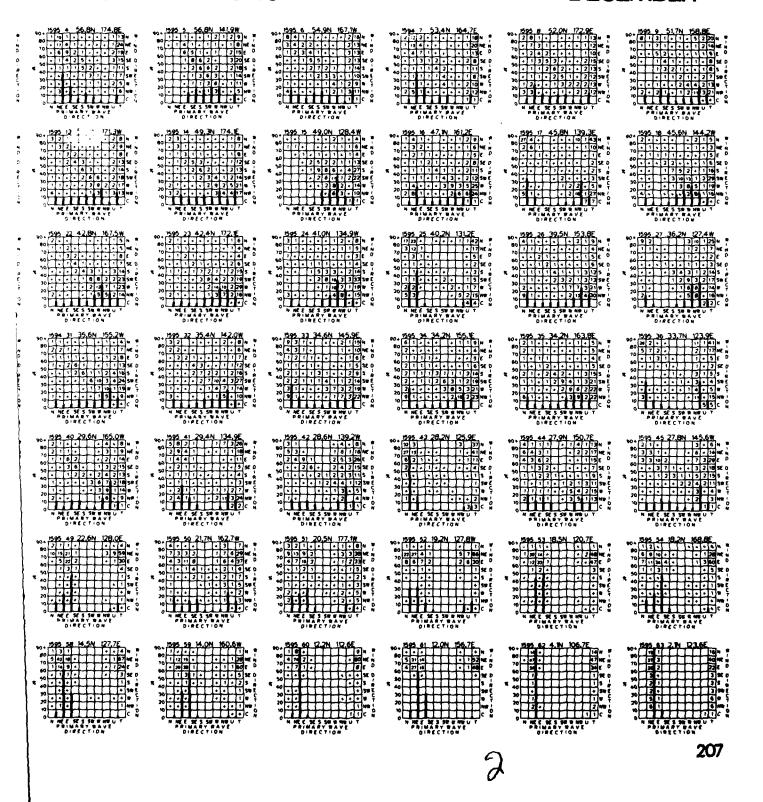


# PRIMARY WAVE DIRECTION AND WIND DIRECTION



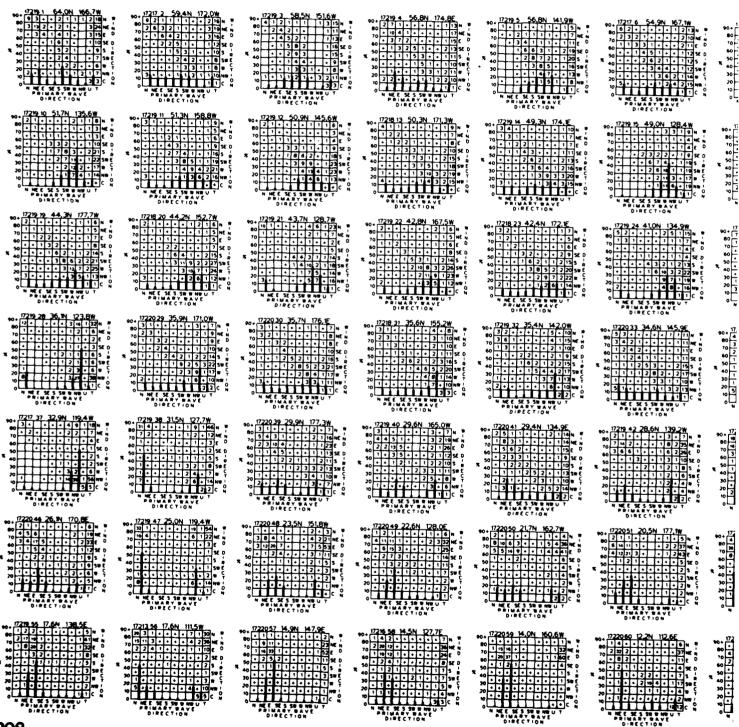
### 1 AND WIND DIRECTION

#### **DECEMBER**



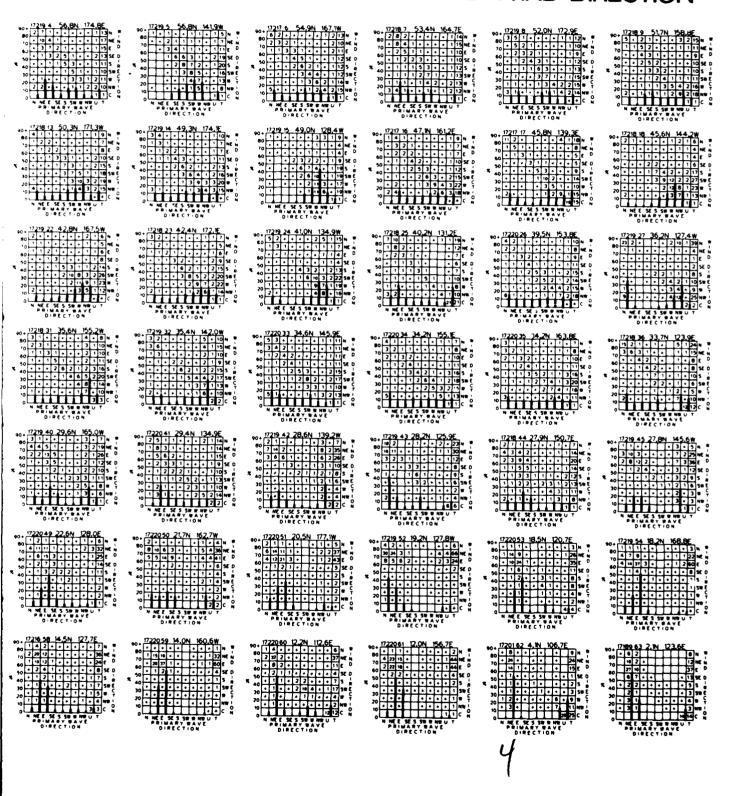
## **ANNUAL**

## PRIMARY WAVE DIRECTIC



<sup>3</sup> 208

## PRIMARY WAVE DIRECTION AND WIND DIRECTION



## WIND SPEED DURATIONS

1 64:0N 166.7W	259.4 N 172.0 W
N   246   5   1   1   2   2   4333   1   2   3   3   1   3   3   3   1   3   3   3	W 3 66   1   2   3   4   5   3   4   5   7   7   7   7   7   7   7   7   7
** 268   4   3   7   7   8   8   18   19   10   10   10   10   10   10   10	N   268
N 264   1	## 564   7   3
N   260   1   1   2   2   2   333   338   339	11 51.3N 158.8W  248 18 3 6 3 2 1 1
13 50.3N 171.3W  19 240 11 11 3 2 1 1	14   49.3N   174.1E   12-1   6   7   4333   12-1   6   7   4333   12-1   6   7   4333   12-1   6   7   4333   12-1   6   7   4333   12-1   6   7   4333   12-1   6   7   4333   12-1   12-1   6   7   4333   12-1   12-1   6   7   7   4334   12-1
R   264   1   2   2	## 248   12   3   1   1   1   1   1   1   1   1   1
## 264   3  2   1   1   1   1   336     248   25  13  6   4   2   2   1   1   2   1   1   1   336     248   25  13  6   4   2   2   1   1   2   1   1   1   336     248   449   12  24   9   7   2   3   1   2   1   1   1   1   1   1   1   336     248   449   12  24   9   7   2   3   1   2   1   1   1   1   1   1   1   1	20 44.2N 132.7W  248 16 6 3 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

## **WINTER**

2 59.4N 172.0W  104 1 7 7 4 4 3 2	N   264   2
5 56.8N 141.9W  4 333  4 4 7 7 8 7 8 8 8 9 141.9W  4 333  4 9 9 9 1 8 7 7 8 1 9 7 8 1 9 7 8 1 9 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9	## 264   1   3   4   3   4   3   5   4   3   5   5   5   5   5   5   5   5   5
8 52.0N 172.9E  44 18 17 18 18 18 18 18 18 18 18 18 18 18 18 18	## \$64   3
11   51.3N 158.8W   18-1   3   6   6   4333   18-1   3   6   6   4333   18-1   3   6   6   4333   18-1   3   6   6   6   4333   18-1   3   6   6   6   4333   18-1   3   6   6   6   4333   18-1   3   18-1   3   6   6   6   4333   18-1   3   18-1   3   6   6   6   4333   18-1   18-1   3   6   6   6   4333   18-1   18-1   3   6   6   6   4333   18-1	N   264
# 644 5 1	N   264
** **-64 * 1 * 1 * 1 * 1 * 1 * 1 * 1 * 1 * 1 *	N   164   2W   1   24   33   1   2   33   34   2   1   36   39   4332   34   39   39   39   39   39   39   39
# 264   3   1   2   2   3   1   2   2   3   3   3   3   3   3   3   3	21 43.7N 128.7W

## **WINTER**

# WIND SPEEL

22 42.8N 167.5W 4333  0 241 25 22 9 9 5 1	23 42.4 N 172.1E    248   28   20   8   3   1	W 264 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
25 40.2N 131.2E    24   1	264   1   1   3   3   4334   161   161   1   3   3   4334   161   161   1   161	W 264
28 36.IN 123.8W    248	## 264   2	% ≥ 64   1
31 35.6N 155.2W    18	32 35.4N 142.0W    264   3	W 264 3 1 1 1 2 4 1 1 2 2 9 1 1 2 4 1 1 1 2 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
34.2N 155.1E  34.30 155.1E  34.30 155.1E  34.40 3.1 1	35 34.2N 183.8E    248   5   1   1	W 264 N 248 0 241 6 2 2 34 23 10 4 5 28 38 18 15 6 22 67 61 30 36 E 217 60 36 44 D 211 45 31 34 2 7 29 0 7 20 n 2 4 16 10 7
37 32.9N 119.4W    248	38 31.5N 127.7W    248   1	# 264 N 248 N 248 N 241 N 241
# 264	## 29.4 N 134.9E  ## 29.4 N 13	N 264 2 0 0 241 0 0 241 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

167.5W	23 42.4N 172.1E	24 41.0N 134.9W
51 53 4333 104 165 4337 552 557 4338 173 187 4346 2077 2107 4378 2938 2997 4421 3723 889 4526 3994 4389 4575 4354 4856 4957 454 4856 4957	# 264   28   20   8   3   1   1   2   3   1   2   3   42 - 1   50   114   127   4337   24   70   46   35   37   11   12   8   4   1   3   1   2   5   5   43   50   37   31   4337   24   70   46   35   37   11   12   8   4   1   3   1   2   72 - 2   230   704   724   4334   24   70   70   70   70   70   70   70   7	N 248 8 1 3
131.2E  4 4 4333  6 18 4333  9 1 4333  958 360 4334  200 925 4335  1629 1653 4346  1628 7720 4436  1719 4436	28 39.5N 153.8E    34   21   7   1	27 36.2N 127.4W    264
123.8W  4333 1 4333 1 1 4333 0 6 4333 24 247 4333 690 693 4334 410 4415 4346 829 2848 4424 1619 175 4463 437 4618 4677	29 35.9N 171.0W  ***********************************	30 35.7N 176.1E  348 8 5 1
155.2W	32 35.4N 142.0W    348   1   3   2   1   1   3   3   3   3   4   4   7   7   4333     244   15   6   2   1   1   3   3   3   4   4   7   7   4333     244   15   6   2   1   1   3   3   3   4   4   2   3   3     244   15   6   2   1   1   3   3   3   4   4   2   3   3     248   25   26   26   26   19   10   10   10     248   25   26   26   26   19   10   10   10     25   27   28   28   28   28   28   28   28	33 34.8N 145.9E    34   31
195, IE	# 264   5   1   1   1   1   1   1   1   1   1	38 33.7 N 123.9E    246
119.4 W 4333 4333 2 7 4333 2 7 4333 25 5 55 4333 248 248 4335 768 768 768 355 154 2158 4391 330 3395 4458 968 4192 4700	38 31.5N 127.7W    248	39 20.9N 177.3W    248
165.0W 4333 5 5 4333 22 22 4333 86 66 4333 761 261 4333 776 760 4333 557 1546 4335 554 2942 4396 562 3962 4466 786 4333 4515 77 7 7 7 7 14	# 29.4N 134.9E  # 246	#2 28.8N 139.2W  #264

U

43 28.2N 125.9E  4334  248  241  241  2 1 1	10   10   10   10   10   10   10   10
48 28.1N 170.8E  1 248  1 248  1 241  2 34 3	47 25.0N 119.4W  4333  448  5 44  5 4 4 4 4 333  6 7 20 13 5 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
49 22.6N 128.0E    248	N   264
52 19.2N 127.6W  1 248  0 241  2 34 2	18.5N   120.7E   120.4E   12
950 17.6N 138.5E    17.6N 138.5E   13.5   14.5   15	56 17 6N 1115W  4333  448  241  344  352  37  38  38  39  39  39  39  39  39  39  39
14.5N 127.7E	14.0N   180.6W
81 12.0N 156.7E    334	62 4.1N 106.7E  336  348  548  541  544  544  544  544  544  5

## (Cont'd)

## **WINTER**

** 0.64	N 264
47 25.0N 119.4 W    264	# 264
50 21.7N 162.7W  4 48 1	51 20.5N 177.1W 4334 N 248
53 18.5N 120.7E  48 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18.2N   168.8E   168.8E   18.2N   168.8E   18.2N   168.8E   18.2N   168.8E   168.8E   168.8E   18.2N   168.8E   16
17.6N   111.5W   4333   4333   448   438	N 248   3   1   1   1   1   1   1   1   1   1
19 14.0N 180.6W  1 4334  2 44  2 28  6 19 8 3 2 1 1 2 1 1 1 1 2 1 3 1 4 150 150 178 84 90 96+ MAX  1 7 18 18 0.6W  1 4334  2 28  6 17 19 2 3 3 4 2 4 5 4 5 6 6 6 7 7 8 8 4 90 96+ MAX  1 8 1 7 7 8 7 7 7 7 7 8 7 7 7 7 7 8 7 7 7 7	# 264
# 264	# 264

## **SPRING**

# 264	2 59.4N 172.0W  ***********************************	W 264
34 5 2 1 1 1 1 48 1 1 31 31 424 5 5 2 18 19 18 21 12 6 2 9 2 3 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	34     15     15     2     3     2     1     42-1     38     60     80     4241       2-28     25     16     10     9     3     2     1     54-1     88     252     256     264241       2-22     29     14     22     26     18     13     8     5     3     3     5     1     1     192-1     148     650     660     4241       3-17     44     26     20     22     18     12     16     13     12     7     5     6     5     3     6     210-1     224     1220     1257     4241	234 9 1 \$ 28 1€ 1 € 222 38 1 € 211 36 7
E 217 36 15 21 15 21 20 11 8 7 9 4 4 2 3 4 9 162 1 89 1114 131 424 1 D 211 25 14 21 21 16 14 9 12 12 12 10 7 9 5 6 7 44 474 1 229 224 2398 424 3 1 2 1 16 14 9 12 12 10 1 1 8 8 8 8 3 8 6 6 570 1 22 3 366 3254 426 3 1 4 2 1 1 16 12 14 9 6 12 14 9 6 13 4 8 8 8 3 8 6 6 570 1 22 3 365 3254 426 3 1 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	( > 1) 44 26 20 27 18 21 16 13 12 7 5 6 7 3 6 210-1 224 1220 1257 424 1 20 13 13 14 13 15 21 19 13 21 10 11 8 7 9 1 10 11 9 6 145 306-2 260 2437 2502 4260 27 10 10 11 9 6 176 556-2 260 2437 2502 4260 27 10 10 11 9 6 176 556-2 27 13 338 3478 4283 1 2 1 15 6 7 2 3 3 5 2 2 2 5 5 1 1 5 5 76 936-1 140 3717 4097 4420	D > 11 48 a
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 4 MAX 1E 1 14 THE HOURS DURATION OF EVENTS	6 '2 '8 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE 1 T+ TH HOURS DURATION OP EVENTS	
4 56.8N 174.8E W 264 424 8 6 1 1 24-1 8 13 13 4241 N 248 6 7 5 2 7 30-2 24 55 55 4241	* 764   5   56.8   141.9 W   4241   12   12   4241   13   14   12   12   4241   13   14   15   15   15   16   16   16   16   16	₩ > 64     > 48   6   > 41   8   9
0 54 13 12 13 7 7 2 3 3 1 489-1 54 61 161 4241 52 88 19 16 13 16 14 7 3 4 3 1 2 66-2 98 378 380 4241 52 28 29 (2) 23 17 14 17 13 9 7 5 11 3 1 2 3 1 126 16 16 18 4 26 4241	> 34 10 6 3 1 1 1 2 3 6 2 25 56 56 424 5 7 8 1 1 7 8 1 7 1 1 7 8 1 7 0 215 215 424 5 2 22 26 27 17 14 17 15 9 7 1 2 4 1 1 1 106 1 146 57 57 576 424 1	> 34 17 1 > 28 38 74 > 22 51 3
E > 17 50 24 33 22 22 14 13 44 9 9 7 13 5 2 4 11 252 1 242 1 243 427 1 244 3 427 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	[ 217 42 40 55 22 19 14 9 77 13 8 2 5 2 2 1 1 6 26 5 2 26 1105 1114 424 1 0 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	E ≥ 17 54 30 D > 11 61 76 L ≥ 2 7 64 1
* > 4 10 7 10 4 7 4 1 4 3 2 7 2 2 4 80 828 1 140 3898 4254 4557 6 12 18 24 30 36 42 48 54 60 66 72 88 4 90 96 6 MAY 7E 7 T 6 TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T THE HOURS DURATION OF EVENTS	A 4 [4]
7 53.4N 164.7E  W 264 1 2 4 12 2 3 5 5 4241 N 248 1 3 5 1 1 1 30-1 10 21 21 4241	8 52.0N 172.9E ** >64 N 248 5 3 4	W >64 N >48 B 3 D >41 7 9
> 34 10 10 8 7 1 1 1 42-1 37 94 94 4241 > 28 19 16 12 15 6 7 3 1 1 1 84-1 80 268 268 4241 > 22 34 18 30   21 19 10 10 4   4   2   1   6   1   90-1   161 673 674 4246	> M 36 14 17 5 7 2 3 4 2 4 7 2 1 2 4 7 2 1 2 7 7 8 2 1 1 2 4 7 8 2 1 1 2	> 34 6 1 > 28 18 24 > 22 39 23
E 217 42 36 30 25 18 12 25 13 11 4 5 4 1 2 3 10 204 1 241 1272 1298 4350 D 211 29 21 128 29 26 14 10 14 20 5 7 2 7 7 41 360 1 20 2427 2434 4290 2 7 25 15 14 11 15 20 10 11 16 6 6 9 2 5 5 2 79 492 2 246 3368 3462 4358 2 4 13 12 10 16 5 5 8 8 1 5 4 6 5 4 2 3 84 798 1 73 13 10 10 4450	\$\begin{array}{c c c c c c c c c c c c c c c c c c c	E 217 48 31 C 311 41 22 > 7 21 7 C 3 4 157 E
6 12 18 74 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T= TH HOURS DURATION OF EVENTS	
10 51.7N 135.6W W 264	11 51.3N 158.8W 264 247 3 4 1 1 36-1 8 17 17 4241 248 3 4 1 1 42-1 41 84 84 4241	W 264 N 248 1 2 D 241 10 5
> 34   14   18   5   6   2	> 34 9/ 25 12 11 4 1 3 1 1 1 1 75 - 1 86 237 239 241 > 28 50 39 24 20 19 10 5 4 3 1 1 1 2 90 - 2 178 502 587 4241 E > 2 57 32 43 38 22 18 14 7 5 7 2 3 2 7 3 6 150 - 1 266 1230 1244 4241	> 34 15 20 S > 28 47 36
E >17 61 46 39 20 28 24 16 13 10 15 9 3 7 4 1 11 144-1 307 1593 1605 4241 D >11 44 20 28 17 28 18 18 18 18 18 18 18 18 18 18 18 18 18	6 2 17 44 40 34 32 24 26 25 6 10 8 9 7 5 3 5 29 240 1 307 2045 2090 4247 0 211 25 15 15 18 25 16 16 13 16 11 14 5 6 3 7 64 564 1 260 3119 3264 4291 2 7 13 10 12 6 6 4 4 4 8 2 7 5 5 5 4 86 630 1 18 1321 3904 4331 6 2 4 6 6 2 2 3 3 1 5 1 1 3 3 4 3 2 1 2 6 9 1350 1 10 8 3939 4374 4527	E 222 51 24 E 217 41 22 D 211 20 10 2 7 13 4 n 2 4 5 7
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T* TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TA TH HOURS DURATION OF EVENTS  14 49.3N 174.1E	6 12
# >64 1 13 50.3N 171.3W   1 1 4.241   1 1	# >64 T	W >64 N ≥48 2 D ≥41 4 2
> 34 36 72 77 5 4 1 3 2	2 34	> 34 7 2 > 28 18 12 > 32 49 30
E > 17 55 47 28 5 11 6 15 16 15 15 15 17 6 7 7 4 3 19 252 - 1 308 1797 1864 4250 D > 11 34 24 5 18 32 18 8 15 16 10 21 7 10 9 10 2 52 402 - 1 295 2854 2986 4284 2 6 2 7 19 9 9 14 7 9 14 5 9 9 11 7 3 8 5 84 576 - 1 222 3565 3775 4355 0 2 4 6 2 4 3 7 7 1 2 4 4 1 1 2 6 8 1 918 - 1 124 3903 4213 4433	\$\begin{array}{cccccccccccccccccccccccccccccccccccc	E > 17 68 48 D > 11 58 36 k > 7 44 23 h > 4 13 13
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS  16 47.1N 161.2E	6 12 18 24 30 36 42 48 54 50 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS  17 45.8N 139.3E	6 12
264   2   6-2   7   2   4241	W 264 N 248 2 6-2 2 2 4 4241 D 241 B 2 1 18-1 11 15 15 4 741	W >64 N >48 D >41 3 5
> 34 37 29 28 9 3 1 2 3 5 46 42 3 112 774 274 424 5 5 1 9 5 108 1 9 5 108 1 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	> 34   12   12   2   3   2   1	234 20 13 5 28 34 21 E 222 41 25 E 217 26 17
0 > 11 38 3   24   25   71   18   16   17   18   18   18   18   18   18   18	0 > 11 61 47 93 95 29 90 24 8 21 11 5 7 8 10 9 24 186 - 1 86 2280 2318 4257 > 7 51 39 21 19 22 18 18 15 8 12 10 9 11 9 10 65 270 2 337 3151 323 4284   2 4 31 27 18 9 12 9 8 9 9 8 4 2 9 6 6 84 462 1 251 3395 3564 4286	D > 11 23 17 > 7 13 6
6 12 16 24 30 36 42 46 54 50 66 72 76 84 90 96 4 MAX TE T TO TH HOURS DURATION OF EVENTS  19 44.3N 177.7W	6 12 18 24 30 36 42 48 54 50 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS  20 44.2N 132.7W	6 12
# 264 1 3 3 4241   246 11 5 3 1 24-1 20 34 36 4241   25 24 1 27 34 103 107 4241	N 264 3 2 4241 N 248 3 2 12-2 5 7 7 4241 D 241 181 5 1 1 2 30-2 27 45 47 4241	W >64 N >48 1 D >4' 3 2
> 34 (43) 20 20 (9 7 (4 12 2 1 1 1 1 76 1 109 790 295 4241	> 34 27 12 11 7 4 1 2 3 1 5 56 1 68 185 188 4241 > 28 49 78 24 25 9 8 3 7 1 1 1 1 1 0 0 1 157 494 501 4241 > 22 25 7 47 28 31 19 24 15 7 8 7 5 6 2 2 4 162 1 262 1167 1190 4244 E > 17 51 37 32   27 23 16   23 14 11 4 10 8 7 1 12   25 196 1 30   2017 2066 4263	> 34 9 4 > 28 15 13 E > 22 45 21 E > 17 67 39
0 211 32 15 25 15 16 15 15 6 10 7 5 19 4 5 2 74 630 - 1 265 3116 3253 4276 2 7 12 8 10 8 12 13 5 5 1 5 6 4 6 7 7 8 82 1044 - 1 188 3570 3855 4334 2 7 6 1 8 6 6 5 7 4 5 5 1 5 1 5 7 1 3 1 1 68 1086 - 1 114 3793 4280 4447	0 \$11 \$23 \$13 \$26 \$13 \$14 \$6 \$14 \$10 \$5 7 7 \$10 \$5 \$6\$ \$378-1 \$24 \$2374 \$259 \$4294 \$259 \$259 \$259 \$259 \$259 \$259 \$259 \$259	D > 11 55 38 > 7 46 24 0 > 4 19 9
6 12 16 24 30 36 42 46 34 60 66 72 76 64 90 96 - MAX TE T T+ TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 964 MAX TE T TP TH HOURS DURATION OF EVENTS	6.13

# WIND SPEED DURATIONS

.7W	2 59.4N 172.0W	3 58.5N 151.6W
4241 5 4241 31 4241 153 4241 153 4241 153 4241 1131 4241	N 48	248
2338 4243 3254 4267 3839 4308	D 313 33 14 13 15 21 19 33 21 10 11 8 7 9 6 45 306-2 260 2437 2502 4260 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	D > 11 48 32 33 25 36 34 17 13 10 18 10 7 9 4 1 22 216-1 318 2052 2065 4085 4244 2 7 38 12 12 22 21 314 23 17 21 15 8 11 2 10 12 15 7 444-1 306 2982 3106 4259 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
.BE	5 56.8N 141.9W	6 54.9N 167.1W
4741 13 4241 15 4241 16 4241 16 4241 180 4241 187 4241 187 4241 187 4241 187 4302 1880 4302 1880 4302 1880 4355 4354 4557 78	N   N   N   N   N   N   N   N   N   N	244   8   5   1
		HOURS DURATION OF EVENTS
7E 474 5 424 7 424	8 52.0N 172.9E  4 64 5 3 4	## 264   1   1   4   424     248   8   3   1
6W	11 51.3N 158.8W	12 50.9N 145.6W
4241 4 4241 24 4241 102 4241 822 4241 1605 4241 1605 4242 3688 4285 4208 4440	N 268 3 4	# 264   1   1
3W	14 49.3N 174.1E	15 49.0N 128.4W
1 4241 29 4241 82 4241 230 4241 529 4241 1096 4246 1864 4250 2996 4284 3775 4355 4213 4433 Ta TH	240   1	# 264   424   42   42   424   424   424   424   43   43
2E 4241	17 45.8N 139.3E	18 45.6N 144.2W
24 4241 96 4241 974 4241 637 4241 7274 4241 72792 4245 7270 4246 73771 4291 73839 4361 74257 4429	N 2-68 2 2 2 2 4241 D 2-41 8 2 1 1 1 1 15 15 4741 > 34 12 17; 7 7 3 2 1 1 1 4241 > 32 27 17 14 4241 > 32 27 17 14 4241 > 32 27 17 14 4241 > 32 27 17 17 14 4241 > 32 27 17 17 14 4241 > 32 27 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	244   3   5   3
'W	20 44.2N 152.7W	21 43.7N 128.7W
3 4241 36 4241 107 4241 295 4241 716 4241 1441 4241 2221 4246 3253 4276 3655 4334 4280 4447 Te TH	N 246 3 2 1 19 5 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	W 264

22 42.8N 167.5W	23 42.4N 172.1E
\$\begin{array}{c c c c c c c c c c c c c c c c c c c	W > 64
D >41 14 4 3 2 23 39 42 4241	0 >41 11 10 2 1 2 1 1 72-1 27 63 63 4241
> 34 1/ 22 10 11 4 1 48-1 65 163 169 4241 > 28 49 32 27 17 15 8 6 5 1 1 90-1 161 492 500 4241	> 34 36 24 13 5 3 3 1 1 1 90-1 87 209 213 4241 5 > 28 49 36 41 21 7 4 4 3 1 1 2 1 155-1 170 511 516 4241
> 22 41 37 41 33 21 25 15 6 11 9 3 4 1 1 2 6 150-1 256 1224 1236 4246	E > 22 53 48 39 44 26 17 25 6 4 1 3 2 1 2 5 162-1 276 1147 1165 4243
E > 17 38 46 30 20 28 20 13 21 16 12 8 4 11 4 4 25 240-1 300 2083 2127 4257 D > 11 25 20 24 26 17 15 10 6 10 6 11 9 4 8 3 71 420-1 265 3104 3309 4317	E ≥ 17 59 48 39 32 43 26 17 14 14 16 3 5 7 2 3 14 228-1 342 1862 1910 4247 D ≥ 11 27 25 35 27 26 24 17 18 14 13 10 11 6 5 11 55 282-1 324 2992 3070 4266
> 7 10 8 7 8 13 7 8 4 9 5 4 4 6 7 5 75 792-1 180 3765 4025 4459	2 7 20 10 7 10 14 9 10 6 14 12 15 7 3 3 5 89 654-1 234 3703 3822 4341
n > 4 4 3 3 3 2 3 3 1 2 4 1 2 3 3 65 1566-1 99 4112 4522 4686 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH	n ≥ 4 5 3 3 3 4 6 5 4 2 1 5 2 2 5 4 76 1104-1 127 4127 4322 4512 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH
HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
25 40.2N 131.2E ** >64 4241	26 39.5N 153.8E * ≥64 1
>48 4241	N ≥ 48 6 1 1 1 1 24-1 9 15 16 4241
0 >41	D 241 7 5 2 3 1 30~1 18 40 42 4241 2 34 19 15 5 4 2 3 3 36~3 48 108 110 4241
28 15 7 1 30-1 23 34 34 4241	D ≥ 28 43 28 26 15 7 4 3 1 48-1 127 325 332 4241
E > 22 24 19 16 7 6 2 1 42-1 75 187 189 4241 E > 17 61 36 16 18 6 12 9 1 2 3 1 1 96-1 166 510 512 4241	E ≥ 22 51 47 47 26 18 17 7 7 3 2 1 1 1 1 84-1 228 772 781 4241 E ≥ 17 59 59 50 43 27 32 14 15 10 6 5 3 3 4 1 3 126-1 334 1454 1472 4241
D > 11 100 70 53 26 30 21 13 B 6 11 5 4 7 4 9 150-1 267 1519 1528 4246	D ≥ 11 58 35 39 34 32 20 35 23 16 12 14 8 6 8 7 33 222-1 380 2593 2648 4247
> 7 95 56 37 31 41 18 23 15 17 15 13 7 9 8 6 34 198-1 425 2552 2585 4276 > 4 72 50 32 28 28 12 9 10 13 13 9 11 5 5 5 64 264-3 366 2934 2971 4307	2 7 26 17 20 20 21 21 20 20 9 11 10 10 10 14 9 71 294-1 309 3435 3518 4298 2 4 11 5 9 4 10 11 8 9 2 4 4 4 4 4 4 8 8 780-1 181 3856 4111 4402
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH
HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
28 36.1N 123.8W	29 35.9N 171.0W × >64 4241
N 248 A241 A241 A241 A241 A241 A241 A241 A241	N 248 1 1 3 3 4241
24-1 25 40 40 4241	D 24-1 3 6 6 4241 234 B 6 1 1 30-1 16 29 29 4241
> 28 42 21 13 3 6 7 3 2 54-2 97 246 248 4241	p > 28 21 10 6 5 3 1 2 48 -2 48 116 116 4241 c > 22 45 22 21 17 8 2 4 4 3 1 1 102 -1 127 376 379 4241
\$\ \chi_2 \ \frac{100}{55} \ \ \frac{31}{31} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	E > 17 69 34 30 23 24 10 18 8 9 7 4 2 1 1 3 120-1 242 977 998 4250
0 > 11 50 19 11 4 7 13 6 1 4 9 3 3 6 2 4 67 756-1 209 3330 3725 4506	D > 11 47 39 37 29 29 26 20 10 17 5 14 6 5 6 2 39 228-1 331 2307 2365 4260
2 7 14 14 6 2 2 6 3 2 5 1 4 2 3 57 1362-1 121 4032 4804 5103 2 4 13 3 2 2 1 1 1 3 39 SEA-1 64 3752 4914 5021	2 7 39 20 24 10 5 18 15 11 11 17 6 14 11 9 8 70 384 - 1 288 3311 3441 4289 2 4 12 5 7 9 4 4 3 5 3 3 2 6 6 2 3 83 708 - 1 157 3676 4041 4340
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 + MAX TE T T+ TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH HOURS DURATION OF EVENTS
31 35.6N 155.2W	32 35.4N 142.0W
*>64	₩ > 64 4241
N 248 N 241 N 241	N >48 4241 0 >41 1 6~1 1 1 4241
>34 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	>34 3 1 24-1 4 10 10 4241
28 16 8 3 1 3 1 1 1 48-1 33 74 75 4241 F > 22 39 22 18 7 6 6 1 4 1 1 1 1 1 78-1 107 315 320 4241	28 6 1 4 1 1 1 1 66-1 14 43 43 4241 5 22 23 13 9 7 7 3 1 1 1 1 84-1 65 196 196 4241
E > 17 60 30 26 21 13 12 8 7 3 5 4 3 1 7 186-1 200 846 867 4243	E > 17 29 25 19 16 5 10 8 4 6 2 2 3 2 138 1 131 546 565 4241
0 > 11 68 33 30 25 21 16 16 15 15 7 5 7 3 9 3 32 372-1 305 2091 2164 4256 2 7 47 19 24 22 13 14 13 12 12 8 6 14 7 9 6 61 522-1 287 3111 3322 4340	D > 11 65 27 16 21 16 21 12 12 16 15 7 3 5 3 2 19 234-1 260 1591 1641 4241 > 7 66 23 24 10 6 12 13 14 18 12 6 10 9 12 4 55 318-1 294 2704 2817 4294
n > 4 24 10 7 8 9 6 6 9 4 2 7 5 3 2 3 85 750-1 190 3696 4040 4419	2 4 40 19 24 4 6 1 3 9 7 11 4 7 9 4 4 84 570-1 236 3627 3858 4476
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH
	HOURS DURATION OF EVENTS
34 34.2N 155.1E	35 34.2N 163.8E
* > 64 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	35 34.2N 163.8E
1 264 N 248 N 248 O 241 2 6-2 2 7 2 424	35 34.2N 163.8E 1 248 1
1 264 1 248 0 241 2	35 34.2N 163.8E   264
264	35 34.2N 183.8E    248
264	35 34.2N 163.8E 4241
264	35 34.2N 183.8E    248
# 764   424   424   424   424   424   424   425	35 34.2N 163.8E 4241  248 1
# 764	35 34.2N 163.8E 4241  248 1
# 264	35 34.2N 163.8E 4241  248 1
# 264	35 34.2N 183.8E    248
264	35 34.2N 183.8E
# 264	35 34.2N 163.8E 4241  248 1
# 264	35 34.2N 163.8E   4241   1   1   4   421   4241   4
2-64	35 34.2N 163.8E     248   1
2-64	35 34.2N 163.8E   4241   1   1   1   4241
# 264	35 34.2N 163.8E   4241   1   1   1   4241
2-64	35 34.2N 163.8E     248   1
2-64	35 34.2N 163.8E 4241    248   1
# 264	35 34.2N 163.8E     248   1
# 264	35 34.2N 163.8E   4241   1   1   4   421   1   4241   1
# 264	35 34.2N 163.8E   4241   1   1   1   4241
# 264	35 34.2N 163.8E    248   1
2-64	35 34.2N 163.8E    248   1
# 264	35 34.2N 163.8E   4241   1   1   1   4241
2-64	35 34.2N 163.8E    248   1

\* >64 N > 48 D > 42 D > 34 D > 28 E > 27 E > 28 D > 47

# 264 | 1 248 | N 241 | S 228 | T 60 | S 228 | E 217 |

# IS (Cont'd)

## **SPRING**

4.41 4.241 9 4.241 0 4.24 0 4.24 0 4.24 0 4.26 1 4.	# 164   1   1   2   2   4241   12   1   2   2   4241   12   1   2   2   4241   12   1   2   2   4241   12   1   2   2   4241   12   1   2   2   4241   12   1   2   2   4241   12   1   2   2   4   241   12   1   2   2   2   4   241   12   2   2   2   2   3   3   3   3   3	## 264
4 24 1 4 24 1 4 24 1 1 4 24 1 1 4 24 1 1 1 4 24 1 1 1 4 24 1 1 1 4 24 1 1 1 1	** 564   1	27 36 2N 127.4 W  364
4241 4241 4241 4241 13 4251 08 4326 25 4506 4 5151 14 5021	29 35.9N 171.0W    348	30 35.7N 176.1E  ***Y 264**
424 424 424 4 424 4 424 20 424 20 424 20 424 21 424 22 4340 42 44 42 42 42	32 35.4N 142.0W    348	33 34.6N 145.9E    248
4,41 424 424 424 424 4424 4424 4424 424 42	35 34.2N 183.8E    34.2N 183.8E	36 33.7N 123.9E    264
4741 4741 4741 6 4241 6 4241 6 4243 9 4272 89 4418 74 4693 35 5186	38 31.5N 127.7W    264	39 29.9N 177.3W    264
4241 4241 4241 4241 4241 4241 11 4241 11 4241 12 4439 15 4967	# 28.4 N 134.9E    29.4 N 134.9E	# 264

## **SPRING**

## WIND SPEE

# 264 # 28.2N 125.9E # 4240 N 248 #	# 264   # 27.9N 150.7E   # 264
# 264	## 25.0N 119.4W  ## 25.
# 264	50 21.7N 182.7W    248
19.2N   127.8W	\$\begin{array}{c c c c c c c c c c c c c c c c c c c
\$\frac{1}{2} \cdot 4	\$\begin{array}{c c c c c c c c c c c c c c c c c c c
58 14.5N 127.7E    248	\$\begin{array}{c c c c c c c c c c c c c c c c c c c
61 12.0N 136.7E    240	\$264

25.9E	44 27.9N 150.7E	45 27.6N 145.6W
4240	W >64 4241 4241 4241	# 264   248   4241
4240	0 >41	0 241 4261 234 1 6-1 1 1 4241
2 2 4240 16 16 4240	> 34 2	S 28 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
99 99 4245	F > 22 19 11 5 1 1 1 1 1 1 60-1 40 91 91 4241	E 222 19 5 8 2 2 1 1 1 90-1 38 94 94 4241
160 460 4246 701 1705 4261	E > 17 55 24 17 9 7 3 2 2 2 1 2 2 1 1 1 96-1 128 377 378 4241 0 > 11 98 40 37 27 23 18 14 10 9 9 7 5 3 3 1 14 228-1 318 1501 1512 4250	E 217 61 27 18 12 9 3 6 2 3 5 2 1 1 2 210-1 152 527 527 4241 0 211 84 32 35 19 10 8 11 7 10 10 5 2 2 5 1 45 450-1 286 2186 2231 4278
987 2961 4292	> 7 80 30 30 11 29 13 23 14 14 16 12 13 8 10 6 50 258-2 359 2786 2842 4268	2 7 48 21 12 3 8 6 9 5 6 6 4 2 6 3 68 682-1 207 3355 3639 4475
503 3706 4404	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TO TH	2 4 22 3 7 3 2 2 2 4 2 7 4 2 4 2 56 1542-1 122 3740 4295 4500
т т• тн	HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
70.8E	47 25.0N 119.4W	W >64 23.5N 151.8W
4241	W >64 4241 N >48 4241	248
4241	0 241	D 241 4241
3 3 4241	\$ 234 \$ 228	> 34 5 > 28 2 6-2 2 2 4241
66 66 4241	F > 22 15 1 2 1 30 - 1 19 28 29 4244	6 2 2 2 9 9 4 2 2 1 1 66-1 47 88 88 4241
368 368 4241 606 1608 4259	E > 17 72 26 18 6 8 4 3 2 3 1  66-1 143 341 345 4248 D > 11 166 60 35 21 17 9 15 7 6 13 9 6 3 5 5 23 336-1 394 1841 1909 4258	E > 17 67 26 13 13 4 9 6 4 3 2 2 1 1 1 1 6 234-1 158 602 608 4242 0 > 11 103 40 35 11 13 9 15 8 6 1 5 5 6 2 7 47 468-1 313 2441 2605 4350
835 2988 4295	2 7 68 36 16 9 10 11 12 12 8 9 6 4 6 8 4 74 642-1 293 3250 3446 4336	> 7 27 11 9 4 8 1 7 6 2 3 3 2 1 1 3 62 1494-1 150 3663 4380 4907
38 3907 4431 7 TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TO TH	0 > 11 103 40 35 11 13 9 15 8 6 1 5 5 6 2 7 47 468-1 313 2441 2605 4350 7 27 11 19 4 8 1 7 6 2 3 3 2 1 1 1 3 62 1494-1 150 3663 4360 4907 7 1 1 1 2 1 2 1 1 3 2 1442 206-1 76 3955 5445 5609 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TO THE
	HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
28.0E	50 21.7N 162.7W	51 20.5N 177.1W
4241	¥ 264 N 248 N 248	>48
4241	D ?*'	0 >41
15 4241	> 34 > 28 7 2 1 1 1	5 > 28 4 1 1 1 1 18-1 6 9 9 4241
3 73 4241	> 22 20 10 5 3 3 2 1 1 4 2 114-1 51 186 186 4241	F > 22 17 9 4 4 1 4 2 42 42 42 41 106 106 4241
327 327 4246 436 1448 4258	E > 17 69 18 12 4 6 11 5 2 4 1 2 2 10 228-1 146 637 647 4244 D > 11 99 36 25 20 16 16 8 4 6 3 9 3 3 4 3 40 666-1 295 2390 2468 4477	0 211 85 30 25 15 11 9 7 5 14 6 11 2 5 1 4 38 996-1 268 2216 2375 4266
018 3054 4350 083 4202 4589	> 7 83 23 23 6 9 9 4 1 1 2 7 4 1 1 5 66 1854-1 245 3756 3978 4791	x > 7 38 18 11 7 8 3 6 1 7 3 1 4 3 66 774-1 176 3154 3958 4581
083 4202 4589 TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TO TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T= TH
•	HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
127.8W	53 18.5N 120.7E W >64 (4241)	54 18.2N 188.8E
4241	248 2 6-2 2 2 4241	>48
3 3 4241 9 8 4241	0 241 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 241 34 2 6-2 2 2 2 4241
39 39 4241	5 28 18 3 4 2 3 1 42-1 31 69 69 4241	S > 28 8 1 2 1 1 36-1 13 26 26 4241
243 260 4249 969 993 4253	E > 22 31 15 9 1 3 2 3 4 2 1	E > 22 45 10 17 3 6 1 1 1 1 1 2 1 96-1 88 237 243 4241 E > 17 96 35 18 12 10 8 8 4 5 4 2 3 1 10 294-1 216 884 919 4246
833 3031 4326	0 > 11 145 47 33 9 16 6 9 17 11 4 8 2 3 2 3 16 276 1 331 1428 1437 4250	D > 11 93 25 31 16 8 10 9 8 7 7 8 5 6 4 6 39 1062-1 282 2457 2709 4259
797 4297 4679 628 4919 5010	2 7 186 65 36 30 17 15 12 12 11 11 6 1 4 3 2 45 372 1 456 2460 2492 4285 2 4 95 39 43 15 18 8 11 8 8 8 6 8 8 5 5 9 61 738 1 347 3460 3629 4417	2 7 23 12 7 6 1 5 3 1 3 3 2 4 2 1 59 1110-1 132 3282 4165 4616 2 2 4 9 3 2 2 1 2 2 1 2 1 2 1 33 1890-1 61 3913 4923 5048
Te TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T= TH	1 2 1 2 4 3 3 2 2 1 2 2 1 2 1 2 1 33 1890-1 61 3913 4923 5048 6 12 18 24 30 34 62 46 50 66 72 78 84 90 96+ MAX TE T Te TH HOURS DURATION OF EVENTS
20.57	HOURS DURATION OF EVENTS	57 14.9N 147.9E
38.5E	\$64   17.8N 111.5W   4241	W >64
4240	248 4241	248 0 241 2 1 24-1 3 6 6 4241
9 8 4240	>34 5 1 12-1 6 7 7 4241	> 34 5 1 1 66-1 7 18 18 4241
41 41 4240 87 198 4240	\$ 28 5 2 1 1 42-1 8 16 16 4241 \$ 22 11 5 2 1 1 1 1 72-1 22 60 60 4244	S 28 15 1 2 1 1 1 1 1 90-1 22 55 55 4241 E 222 75 13 9 3 3 4 1 1 1 1 1 114-1 111 229 229 4241
89 709 4242	£ > 17 64 16 7 2 2 2 1 1 1 1 1 96-1 97 188 189 4244	E > 17 187 18 34 12 10 4 8 1 2 1 3 3 2 2 168-1 287 679 715 4241
907 2017 4258 92 3139 4286	0 > 11 209 78 48 24 26 19 15 2 5 1 5 1 2 2 2 5 120-1 444 1260 1266 4248 > 7 133 70 59 21 23 28 22 10 16 8 16 4 8 5 10 46 306-1 479 2893 2981 4298	
95 4204 4616	2 > 4 37 21 12 5 12 10 6 4 5 4 8 5 4 9 3 70 924-1 215 3631 4007 4394	2 > 4 36 11 15 5 5 3 3 6 2 3 4 1 1 64 924-2 159 3494 4225 4507
7 Т• ТН	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 50 66 72 78 84 90 96+ MAX TE T T= TH HOURS DURATION OF EVENTS
27.7E	59 14.0N 180.6W	60 12.2N 112.6E
4241	# >64 4241	# >64   >48
3 3 4241	N 248 D 241	0 241
6 6 4241	> 34 2 1 1 18-1 3 5 5 4241	. > 34
7 17 4241	5 >22   22   4   3   2   1   3   2   2	F > 22 2 1 2 1 1 1 102-1 7 31 31 4241
33 233 4241	F > 17 [85] 35 [16] 7 [11] 5 [4 [1] [2 [4 [2 [4 [1 [1 [8 [240-1 [186 [712 [718 [4250]	E > 17 20 8 4 3 1 1 1 1 1 1 1 20 - 1 40 115 115 4241
75 1080 4256 51 2423 4276	> 1 13 6 3 3 3 2 1 1 2 1 1 3 1 41 SEA-1 79 3803 4369 4565	> 7   170   61   41   13   13   8   6   6   3   8   4   2   4   4   2   28   486 - 1   382   2011   2045   4447
42 3552 4320 To TH	2 1 2 2 1 1 22 SEA- 5 30 4133 5132 5178 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TE TH	2 4 158 67 53 19 18 9 9 4 2 8 7 3 2 5 2 45 834-1 411 2791 2862 4492 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH
1 '' '"	HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
8.7E	62 4.1N 106.7E	63 2.1N 123.6E
4241	W 264 4241 N 248 4221	₩ > 64 \ > 48
4241	0 241 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D ≥41 4241
7 17 4241	> 34 5 > 78	5 \$ 28 + + + + + + + + + + + + + + + + + +
5 115 4241	F > 22	£ > 22
3 521 4241 55 2326 4259	E > 17	E>17
9 3976 4398	> 7 33 12 5 1 3 1 3 2 4 5 5 6 64 170 170 4251	7 47 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
7 4862 4925 To TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TO TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 60 96+ MAX TE T To TH HOUSE DURATION OF EVENTS
	HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
i		1.4
-		T .

## WIND SPEED DURATIONS

4.0N 166.7W	2 59.4N 172.0W
* >64 >40	# 264 248 2 12-2 2 4 4 4100
0 241 1 2 2 4100	D 241   2   1   36-1   4   11   11   4100   234   2   2   3   3   1   42-1   11   34   34   4101
S > 28 6 4 2 1 1 1 3 48-3 18 62 62 4101	5 28 9 8 6 4 5 2 2 2 2 5 54-2 40 144 144 4102
\$22\fis\fis\7\\$\2\1\4\3\1\1\2\1\1\\\\\\\\\\\\\\\\\\\\\\	E > 22 24 16 10 9 12 6 9 6 1 2 2 2 1 1 90-1 101 435 438 4106 E > 17 33 20 18 13 14 14 9 13 12 4 3 3 3 3 5 5 138-1 172 970 986 4135
D > 11 47 27 17 17 16 16 15 11 15 6 4 4 10 2 4 29 234 1 240 1826 1893 4181	0 > 11 31 30 24 15 22 19 17 8 16 4 13 9 8 4 7 38 270-1 265 7212 2249 4181
E >17 34 13 18 14 13 9 6 4 4 4 7 3 2 11 1 9 180 1 137 744 748 4151 D >11 47 27 17 17 16 16 15 11 15 6 4 4 10 2 4 29 234 1 240 1826 1893 4181 D >1 47 28 17 17 16 16 15 11 15 6 4 4 10 2 4 29 234 1 240 1826 1893 4181 D > 1 29 14 16 12 14 19 5 14 13 10 9 7 11 8 8 5 7 420 1 246 2868 3010 4223 D > 4 24 15 12 16 6 7 7 5 5 4 5 4 9 3 7 8 95 558 1 210 2286 3685 4308	> 7 24 9 12 10 15 13 12 12 8 6 8 9 9 8 3 69 360 1 227 3054 3317 4262 > 4 14 4 10 4 3 1 2 4 4 4 2 3 1 9 2 73 792 1 140 3608 4249 4624
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS
4 56.8N 174.8E	5 56.8N 141.9W
* >64 4100 >48 4100	# >64 1 >48
0 241 5 5 5 5 4100	D >41 3 1 1
> 34 7 3 2 2 3 1 1 54-1 18 51 51 4108 > 28 17 11 8 7 4 5 2 2 2 2 78-2 58 197 197 4118	5 28 7 6 5 1 3 3 1 2 54~2 28 96 98 4100
>22 28 8 12 12 14 11 7 6 5 1 4 4 114-2 112 534 536 4130 5 17 46 27 23 14 20 22 14 11 11 5 4 6 5 1 111 132-1 220 1191 1214 4138	E > 22 25 13 12 11 4 3 4 5 3 1 1 1 1 84 - 1 82 290 305 4102 E > 17 42 22 14 20 17 7 6 8 3 4 3 4 3 1 1 3 108 - 1 158 707 741 4104
0 11 39 27 22 9 17 22 17 6 14 11 6 10 7 7 5 55 378-1 274 2543 2598 4224	D > 11 52 25 30 15 21 23 17 11 14 9 10 9 3 5 7 20 222-1 271 1852 1930 4190
7 2 16 7 13 7 4 11 6 12 11 8 4 8 1 4 85 492 1 216 3143 3557 4315 7 4 11 5 6 6 4 3 1 2 6 4 1 2 2 1 3 74 1080 1 130 3377 4066 4345	2 7 30 18 23 12 13 11 10 8 12 9 11 10 11 7 6 62 546-1 253 2935 3146 4343 2 2 4 16 22 5 11 9 7 5 4 1 9 7 3 2 7 4 72 546-1 184 3429 3867 4375
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAK TE T T+ TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS
HOURS DUNATION OF EVENTS  7 53.4 N 164.7E	8 52.0N 172.9E
* ,64 [	W >64 4100
1 248 1 6-1 1 1 1 4100 0 241 2 6-2 2 2 2 4100	D 24-1 9 16 16 4100
34 2 6 1 1 1 27 27 A105	2 34 10 4 8 3 2 1 1 48-1 28 72 72 4·02
p > 22 32 14 13 12 9 10 3 1 2 1 90-1 96 313 314 4111	F > 22 41 20 24 18 13 9 8 5 5 2 3 1 1 1 1 1 126-1 152 599 607 4114
2 2 17 36 34 16 17 19 18 15 12 9	$\epsilon \ge 17[48]46[34]21[21]20[18]7[14[6]2[4]3[3[3]6[144-1]256[1232]1274[4123]$
7 24 28 20 20 14 15 8 11 7 15 8 14 3 4 6 70 426-1 267 2903 3123 4219	2 7 23 5 16 11 10 13 14 11 12 9 8 7 7 8 5 72 582-1 231 3300 3605 4281
7 2 4 12 11 10 5 8 7 8 7 3 3 6 6 3 5 4 77 864-1 175 3425 3916 4383 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T Te TH	n > 4 12 5 1 3 4 3 3 6 6 4 4 2 1 1 76 996-1 131 3490 4227 4477
HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
10 51.7N 135.6W	W >64
248 1 6-1 1 1 4100	N 248 2 6-2 2 2 4100
0 241 3 1 12-1 4 5 5 4100 234 11 4 3 2 24-2 20 36 37 4100	0 24
\$ 28 19 11 8 5 6 1 36-1 50 121 123 4100	2 > 28 35 25 17 7 2 6 4 3 2 5 7 7 2 6 4 3 2 6 7 7 7 2 6 7 7 7 7 7 7 7 7 7 7 7 7 7
E > 17 50 26 23 18 10 18 7 6 4 7 5 3 3 4 1 7 126-1 192 929 963 415	F > 17 4 1 39 32 29 19 23 13 6 10 12 7 4 6 3 1 19 204 1 264 1571 1641 4138
D > 11 53 23 21 21 18 16 15 20 13 14 9 4 12 3 2 35 270-! 279 2202 2266 4133 2 7 31 18 11 9 13 8 10 6 7 9 3 5 5 7 3 81 636-1 226 3289 3454 4336	D > 1 34 20 9 71 13 10 14 11 6 5 9 12 6 4 7 6 6 24 - 1 252 2920 3051 4296 2 7 15 13 8 8 9 13 4 7 5 6 8 4 7 4 10 71 766 1 192 3431 3655 4407 2 4 8 2 7 4 3 2 1 1 1 1 3 2 1 3 3 1 5 3 1032 1 90 3379 4353 4526
2 4 10 9 5 1 5 3 5 5 2 1 3 1 1 1 66 1272-1 118 3820 4408 4705	k ≥ 7 15 13 8 8 9 9 13 4 7 5 6 8 4 7 4 10 71 766-1 192 3431 3855 4407 2 4 8 2 2 4 3 2 1 1 1 3 2 1 3 3 1 53 1032-1 90 3579 4353 4526
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TW TH HOURS DURATION OF EVENTS
13 50.3N 171.3W	# >64   14   49.3N 174.1E   # 100
# >64   >48 3 1   18-1 4 6 6 4100	12-1 2 3 3 4100
D >41 6 4 1 24-1 11 18 19 4100	0 241 3 7 1 1 1 1 30-1 13 29 29 4100 2 34 19 9 6 2 3 2 1 42-1 42 97 97 4100
> 34 17 8 8 2 2 2 2 3 36 - 2 39 87 91 4101 > 28 29 21 14 12 7 5 4 2 1 1 1 1 72 - 1 97 301 309 4111	20 31 26 15 14 6 6 2 3 2 5 5 5 7 105 306 312 4102
E >22 29 34 26 18 16 7 11 10 3 5 5 3 2 2 3 96 3 174 798 817 4126	E 222 46 32 23 14 20 13 6 7 8 4 1 1 2 1 3 114-1 181 740 753 4107 E 217 54 38 33 32 20 19 17 9 7 8 6 6 3 7 13 138-2 272 1435 1474 4139
D > 11 39 18 16 18 19 19 19 11 12 17 16 11 2 13 4 1 7 54 438 - 1 275 2768 2854 4190	0 2 11 44 28 28 24 16 24 19 15 13 8 15 10 7 5 8 46 288- 1 310 2627 2751 4166
> 7 18 13 9 6 13 8 6 6 5 8 3 5 5 7 7 79 840-1 198 3432 3638 4252 3 4 5 4 2 4 7 1 4 3 5 1 2 2 1 3 2 69 1680-1 115 3769 4551 4796	2 7 19 14 7 11 12 10 10 11 5 9 7 7 9 5 2 77 534-1 215 3337 3576 4191 2 4 12 3 3 4 2 7 4 4 4 3 2 2 1 4 5 63 948-1 123 3388 4165 4388
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH HOURS DURATION OF EVENTS
HOURS DURATION OF EVENTS  16 47.1N 161.2E	17 45.8N 139.3E
W >64 4100	W >64 4099
N 24-1 8 14 4100	D 241 1 4 4 4099
> 34 7 4 3 4 1 1 1 42-1 20 53 53 4101 > 28 29 19 9 5 2 1 1 2 1 1 78-1 70 180 180 4103	2 34 4 3 1 1 1 2 1 48-1 9 21 21 4099 5 28 11 4 3 1 1 2 1 90-1 23 66 66 4099
6 > 22 34 29 31 13 16 3 2 2 5 3 2 1 1 2 106-1 144 524 527 4105	F 22 26 13 10 7 5 1 1 1 1 1 90-1 66 183 188 4103
E 217 59 36 33 33 20 12 10 10 9 3 3 4 3 1 7 144-1 243 1072 1107 4105 0 21 62 34 36 31 24 26 22 20 16 9 12 5 9 8 5 26 258-1 347 2307 2381 4130	E > 17 45 29 21 17 13 8 5 1 2 3 3 1 2 132-1 150 522 538 4108 D > 11 64 38 31 36 22 17 22 11 12 5 2 4 8 6 2 11 168-1 291 1500 1538 4136
> 7 30 16 12 11 14 17 20 17 (11 10 10 9 1 11 3 6 70 366 1 267 3223 3468 4241	> 7 62 22 30 19 21 24 16 18 13 17 10 3 5 4 8 43 252-1 325 2413 2525 4179
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 + MAX TE T TH	6 12 18 24 30 36 42 48 54 50 66 72 78 84 90 96+ MAX TE T T+ TH
HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
19 44.3N 177.7W	20 44.2N 152.7W
N 248 6 8 8 8 A100	N 248 2 6-2 2 2 4100 D 241 2 1 18-1 3 5 5 4100
> 34 13 6 5 1 2 1 42-1 26 63 63 4101	>34 6 6 6 1 3 3 30-3 22 55 55 4100
20 35 21 11 11 12 3 2 2 1 1 76-1 96 275 275 4102 22 46 40 30 26 20 6 11 5 6 2 3 1 1 1 1 3 132-1 206 806 816 4123	\$\frac{28}{62} \frac{23}{66} \frac{16}{12} \frac{15}{15} \frac{2}{1} \frac{1}{1} \frac{3}{3} \frac{48-3}{1} \frac{73}{196} \frac{203}{203} \frac{4100}{4102} \frac{22}{65} \frac{50}{20} \frac{21}{16} \frac{11}{14} \frac{9}{9} \frac{6}{4} \frac{3}{3} \frac{2}{1} \frac{1}{1} \frac{1}{1} \frac{96-1}{96-1} \frac{165}{165} \frac{602}{602} \frac{621}{621} \frac{4102}{4102}
E > 17 53 44 30 27 23 20 17 18 7 15 7 7 2 3 3 12 228 1 288 1579 1607 4138	E ≥ 17 [46] 25 [ 19 [20 ] 16 [ 13 ] 9 [ 15 ] B [ 4 ] 5 [ B ] 7 [ 3 ] 2 [ 10 ] 258~1
0 > 11 36 24 13 22 12 13 8 14 16 10 13 8 10 8 6 54 378-1 267 2675 2815 4201 > 7 13 25 8 7 11 7 8 6 10 1 6 12 8 7 7 82 762-1 218 3485 3659 4301	D > 11 49 16 20 18 19 11 10 10 14 13 9 4 5 5 2 54 324-1 259 2418 2523 4139 2 7 29 10 10 13 11 10 10 4 5 3 4 6 3 2 2 76 588-2 198 3248 3474 4255
2 4 7 3 5 5 2 2 2 2 4 3 2 4 1 3 1 73 804-1 119 3801 4030 4269	1 2 4 10 3 14 4 6 3 2 1 2 2 1 1 3 2 1 72 1002-1 127 3544 4064 4394 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH
	HOURS DURATION OF EVENTS
HOURS DURATION OF EVENTS	HOURS BURKTION OF BYBRIS

1

W 364 N 24E D 241 S 22E E 211 D 311 E 2 4

\* :64 N :248 D :241 S : 228 E : 217 D : 217 n : 24

# 264 N 241 D 241 S 228 E 227 D 211 L 2 7

# >64 N >48 D >41 S > 28 E > 17 D > 11 L > 7 n > 4

₩ ≥ 64 N ≥ 48 D ≥ 41 S ≥ 28 E ≥ 22 E ≥ 17 D ≥ 11 k ≥ 7 n ≥ 4

W 264 N 248 D 241 S 228 E 222 E 217 D 211 L 2 7 n 2 4

## **SUMMER**

2 59.4N 172.0W    174	3 58.5N 151.6W    264
5 58.8N 141.9W  4100  241 3	N   264
8 52.0N 172.9E    172.9E	\$\begin{array}{c c c c c c c c c c c c c c c c c c c
11   51.3N   158.8W	12 50.9N 145.6W    248   1
14	15   49.0N   128.4 W   1
17 45.8N 139.3E    248	18   45.6N   144.2W   4100   14.100
HOURS DURATION OF EVENTS	HOURS DURATION OF BYERTS
	21 43.7N 128.7W    248

J

## SUMMER

## WIND SPEI

22 42.8N 167.5W    748	23	# 264   7   7   7   7   7   7   7   7   7
# >64	36.5N 153.8E  4 100  1 448 2	64   1   1   1   1   1   1   1   1   1
28 38.1N 123.8W  4100  0 241  2 34  2 34  2 35  3 6.1N 123.8W  4100  0 241  2 34  2 35  4 100  5 28  7 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	29 35.9N 171.0W  1 48  1 4100  2 4100  3 48  3 48  4 100  3 41  4 100  4 100  5 28 5 2 1 4 1 4 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1	N 148   148
31 35.6N 155.2W  ***********************************	32 35.4 N 142.0 W  N 248	64   1   1   1   1   1   1   1   1   1
34 34.2N 155.IE 4100 0	35 34.2 N 183.8E    1	\$\) 244 \$\) 2.74 \$\) 2.75 \$\) 2.76 \$\) 3.74 \$\) 2.75 \$\)
37 32.9N 119.4W  248	38 31.5N 127.7W 4100 N 248	9 264 N 241 D 241 S 34 1 C 276 1 E 217 33 8 4 D 211 1 10 56 2 B 2 6 1 S 36 1 C 276 1 S 376 1
# 264 # 20.6N 165.0W # 4100 0 241 # 4100 0 241 # 4100 5 248 # 4100 5 248 # 4100 5 248 # 4100 5 248 # 4100 5 249 # 4100 6 22 5 2 2 5 2 2 4 100 6 21 103 29 29 16 10 11 9 11 6 9 5 5 2 2 5 24 252 2 2 200 1546 1546 4130 0 211 103 29 29 16 10 11 9 11 6 9 5 5 2 2 5 24 252 2 2 200 1546 1546 4130 0 211 103 29 29 16 10 11 9 11 6 9 5 5 2 2 5 24 252 2 2 200 1546 1546 4130 0 2 11 103 29 29 16 10 11 9 11 6 9 5 5 2 2 5 24 252 2 2 200 1546 1546 4130 0 2 11 103 29 29 16 10 11 9 11 6 9 5 5 2 2 5 24 252 2 2 250 1546 1546 4130 0 2 11 103 29 29 16 10 11 9 11 6 9 5 5 2 2 5 24 252 2 2 250 1546 1546 4130 0 2 11 103 29 29 16 10 11 9 11 6 9 5 5 2 2 5 24 252 2 2 250 1546 1546 4130 0 2 11 103 29 29 16 10 11 9 11 6 9 5 5 2 2 5 24 252 2 2 252 2 2 250 1546 1546 4130 0 2 13 10 10 10 10 10 10 10 10 10 10 10 10 10	# 264   1	9 > 64   1   1   1   1   1   1   1   1   1

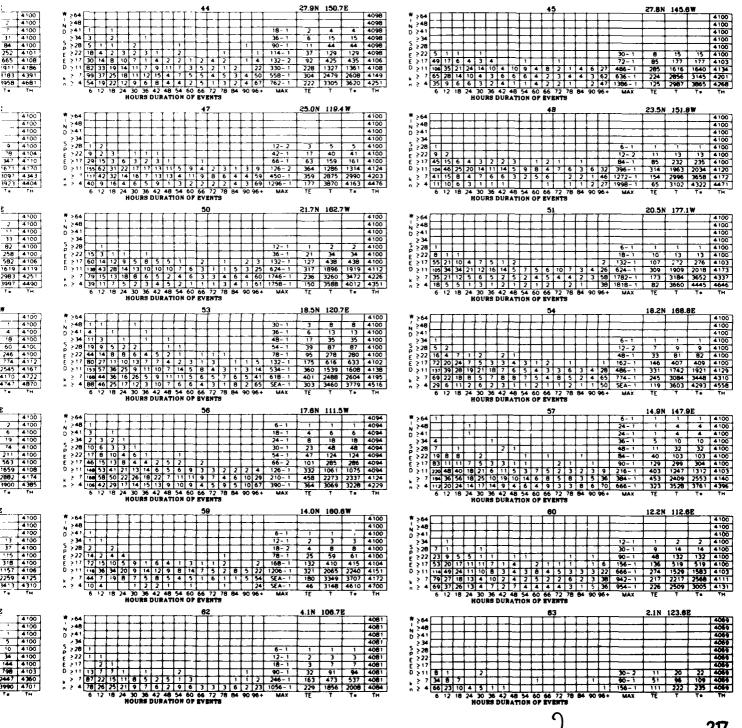
167.5W	23 42.4N 172.1E	24 41.0N 134.9W
4 100 4 100 1 23 4 100 14 3 145 4 100 14 3 145 4 100 1568 2 108 4 20 1568 2 108 4 20 1406 16 19 4 104 1408 4 105 4 15	1	248
4 Toc 4 Oct 4 Toc	26 39.5N 153.8E  ***168	27 36.2N 127.4W    248
1238W 4700 4700 4700 4700 4700 4700 4700 470	29 35.9N 171.0W  4100  4	30 35.7N 178.1E    10   10   10   10   10   10   10   1
4 700 4 700 4 700 4 4 750 74 4 750 74 4 750 74 75 4 750 76 4 760 76 4 760 76 4 760 76 4 760 7	32 35.4N 142.0W  4100  4	33   34.6N   145.9E   N   246   N
55.1E 4.700 4.700 4.700 56 .6 4.700 78 4.7	35 34.2N 163.8E  4 100  4 4 100  4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	38 33.7N 123.9E    10   10   10   10   10   10   10   1
9.4 W	38 31.5N 127.7W    264	39 29,9N 177.3W  248 4 4100  241 4100  241 4100  241 4100  241 4100  241 4100  241 4100  242 41 4100  242 41 4100  35 28 41 41 41 4100  25 28 41 41 41 4100  27 28 41 41 41 4100  28 28 41 41 41 41 4100  29 29 41 41 41 4100  29 29 41 41 41 4100  29 29 41 41 41 4100  29 29 41 41 41 4100  29 29 41 41 41 4100  29 29 41 41 41 4100  29 29 41 41 41 4100  29 29 41 41 41 41 4100  29 29 41 41 41 41 41 41 41 41 41 41 41 41 41
6.0W 4100 4100 4100 4100 4100 5 176 4110 5 1564 417 6 1564 417 7 27 7 3880 4309 7 Th	## 29.4N 134.9E  ## 30.4N 134.9E  ## 4100    24   7   5   5   4100   24   7   5   5   4100   24   7   7   5   5   4100   24   7   7   5   5   4100   24   7   7   7   7   7   7   7   7   7	# 264   4100   4
1		, 1

43 28.2N 125.9E	44 27.9N 150.7E
* 264	W >64 4098
N 248 1 1 2 2 4100 D 24-1 4 7 7 4100	N 248 4098 D 241 1 1 1 18-1 2 4 4 4098
>34 3 3 2 1 1 1 54-1 10 28 31 4100	> 34 3 2 1 1 [ ] 36-1 6 15 15 4098
5 > 28 5 7 4 3 1 2 1 1 1 72-1 24 80 64 4100 c > 22 25 10 8 4 3 5 4 2 1 1 1 1 1 90-1 66 241 252 4101	28 5 1 1 2 1 1 90-1 11 44 44 4098 22 2 18 4 2 3 2 3 1 2 1 1 1 114-1 37 129 129 4098
E > 17 42 17 16 6 9 12 4 8 6 3 3 2 2 3 2 3 120-1 138 652 665 4108	E > 17 30 14 8 10 7 1 4 2 2 1 2 4 2 1 4 132 - 2 92 425 435 4106
D 211 61 19 26 10 14 9 13 7 6 9 7 9 1 9 1 30 330-1 231 1719 1911 4186 2 7 52 24 14 6 11 4 8 7 6 5 7 2 6 3 6 63 570-1 224 2779 3183 4391	D > 11 82 33 19 14 11 7 9 11 7 3 5 2 1 2 22 330-1 228 1327 1361 4108 > 7 99 37 25 18 11 12 15 4 7 5 5 4 5 3 4 50 558-1 304 2479 2608 4149
0 > 4 31 22 10 5 9 4 2 3 8 1 3 3 2 5 2 67 1572-1 177 3350 3958 4681	n 2 4 54 19 22 12 9 6 8 4 4 2 5 1 3 2 4 67 762-1 222 3305 3620 4251
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS
46 26.1N 170.8E	47 25.0N 119.4W
* >64 >48	₩ ≥64 ≥ 248 4100
D >41	D 241 4100
> 34 4100 5 > 28 4 1 1 1 18-1 6 9 9 4100	2 34 4 4 100 5 > 28 1 2 4 100
>22 13 5 1 2 1 1 1 1 B4-1 25 78 78 4104	E > 22 9 2 3 1 1 1 1 4100
E > 17 53 14 12 8 5 4 3 2 2 1 1 3 2 132 1 109 347 347 4110 D > 11 82 22 19 12 14 9 14 8 8 4 4 8 8 3 3 1 28 384 1 239 1639 1671 4170	E > 17 29 15 3 6 3 2 3 1 1 1 66-1 63 159 161 4100 D > 11 155 62 31 22 17 17 13 11 5 9 4 2 3 1 3 9 126-2 364 1286 1314 4124
7 80 30 16 10 10 3 5 5 7 4 6 2 3 3 7 63 792-1 254 3015 3097 4343	> 7 117 42 32 14 16 7 13 13 4 11 9 8 6 4 4 59 450-1 359 2875 2990 4203
. 4 46 14 7 10 8 4 2 3 3 3 1 2 2 62 948-1 167 3346 3923 4404 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 MAX TE T TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TA THEOURS DURATION OF EVENTS
HOURS DURATION OF EVENTS	
49 22.6N 128.0E	50 21.7N 162.7W W >64
>48	N 248 4100
0 /41 1 1 1 1 4100 36 -1 3 11 11 4100 37 34 3 3 2 1 2 2 42 2 11 33 33 4100	>34
> 28 16 3 3 1 2 1 2 1 84 - 1 29 82 82 4100	\$ >28 1 1 2 2 4100
22 18 9 6 6 5 4 1 1 2 1 2 1 1 1 150-1 59 257 258 4100 2-11 46 18 12 7 6 1 6 5 3 4 1 1 5 3 1 6 156-1 124 579 582 4106	E > 17 601 14 12 9 5 8 5 5 1 2 1 2 3 132-1 127 438 438 4100
0 11 92 39 30 30 4 13 15 13 6 6 7 3 9 7 2 7 32 252-1 272 1584 1619 4119	D > 11 136 43 28 14 13 10 10 10 7 6 3 1 1 5 3 25 624-1 317 1896 1919 4112 > 7 79 15 13 18 8 6 5 2 4 6 3 3 4 6 4 60 1746-1 236 3260 3472 4226
A 4 3 20 10 5 5 4 3 4 2 3 4 2 3 3 2 66 1152-1 179 3634 3997 4490	n > 4 39 11 7 5 2 3 4 5 2 1 1 1 3 4 1 61 1758-1 150 3588 4012 4351
6 '2 18 JA 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH MOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T. TH.
52 19.2N 127.8W	53 18.5N 120.7E
400	W > 64 4100 30-1 3 6 8 4100
N 348 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D 241 4 1 1 1 1 36-1 6 13 13 4100
36-1 6 18 4100 5 28 20 2 1 1 1 1 66-1 27 54 60 4100	S 38 10 0 5 2 2 4 10 0 5 2 2 4 100
22 44 13 7 5 4 4 2 1 1 1 1 1 84 1 85 231 246 4100	f > 22 44 14 8 8 6 4 5 2 1 1 1 1 1 78-1 95 278 280 4100
1 98 28 27 8 17 5 0 2 6 2 1 1 7 1 1 2 1 2 1 2 1 3 1 2 1 2 1 3 6 2 2 6 2 1 1 7 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	E > 17 80 27 11 10 13 7 7 4 2 3 1 3 1 1 5 132-1 175 616 633 4102 0 > 11 15 57 36 25 9 11 10 7 14 5 8 4 3 1 3 14 534-1 360 1539 1608 4138
52 77 15 10 12 5 5 4 1 1 2 7 4 2 5 67 2028 1 207 3588 4170 4722	> 7 166 44 36 16 26 5 9 11 11 5 6 5 7 6 5 41 618-1 401 2488 2604 4195
6 12 18 24 10 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TH	n > 4 88 46 25 17 12 3 10 7 6 6 4 3 1 8 2 65 SEA- 1 303 3460 3779 4516 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 + MAX TE T Tw TH
	0 12 18 24 30 30 42 48 34 60 00 12 18 64 90 901 MMK 1E 1 14
HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
* -64	HOURS DURATION OF BYENTS  56 17.6N 111.5W 4094
* .64   17.6N 138.5E   4100   6.2 2 2 2 4100	HOURS DURATION OF EVENTS  56 17.6N 111.5W  W 264 4 4094 5.248 1 6-1 1 1 1 4094
95 17.8N 138.5E 17.6N 138.5E	HOURS DURATION OF BVENTS  56 17.6N 111.5W    248
17.6N 138.5E	HOURS DURATION OF BVENTS   56   17.6N   111.5W
17.6N   138.5E	HOURS DURATION OF BVENTS   56   17.6N   111.5W
17.6N   138.5E	HOURS DURATION OF BYENTS   56   17.6N   111.5W
17.6N   138.5E	HOURS DURATION OF BYENTS  56  17.6N 111.5W  2.64
17.6N   138.5E	HOURS DURATION OF BYENTS   56   17.6N   111.5W
** -64   17.6N 138.5E   4100   48.6   48	HOURS DURATION OF BYENTS  56  17.6N 111.5W  4094 1 4094 1 4094 1 4094 1 4094 1 51 3 1 1 4 4 94 1 52 2 2 2 4 126-1 4 7 124 124 4094 1 52 4 13 8 4 4 2 5 2 2 2 4 126-1 4 7 124 124 4094 1 52 17 46 15 13 8 4 4 2 5 2 7 1 1 11 9 7 4 6 10 79 710-1 458 2273 2337 4124 1 6 12 18 24 30 36 42 48 54 50 66 72 78 84 90 96+ MAX TE T TO THE TOP
17.6N 138.5E	HOURS DURATION OF BYENTS  56  17.6N 111.5W  248 1
17.6N 138.5E	## Company   Com
17.6N   138.5E	HOURS DURATION OF BYENTS  56  17.6N 111.5W  2.64  1.
17.6N   138.5E	## 264
17.6N   138.5E	## 264
17.6N   138.5E	HOURS DURATION OF BYENTS  56  17.6N 111.5W  264 1
17.6N   138.5E	HOURS DURATION OF BYENTS  56  17.6N 111.5W  2.64 1
17.6N   138.5E	## Company   Com
# 664   17.6N 138.5E   4100   17.6N 138.5E	## 264
17.6N   138.5E	## 264
17.6N 138.5E  18.5N 138.5E  18	## 264
17.6N 138.5E  18.5N 138.5N 138.5E  18.5N 138.5N 138	## 264
17.6N 138.5E  18.60 13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	## 264
17.6N   138.5E	## 264   1
17.6N   138.5E	## 264   1
# -64	## 264   1

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#### **NS** (Cont'd)

#### **SUMMER**



# FALL

B4.0N   168.7W	N   264   1	≥22 >17
HOURS DURATION OF EVENTS  36.8N 174.8E	HOURS DURATION OF EVENTS	
# 664 2 1	W 264   9 4 4   4   4   4   4   4   4   4	248 241 234 228 222 217 211 2 7 2 4
7 53.4N 164.7E W 264 2 6 7 6 2 2 2 3 4544	8 52.0N 172.9E	¥ ≥64 [
248   13   6   4   1   1   1   1   1   1   1   242   1   24   41   43   4544   1   23   24   24   16   12   43   1   1   1   1   1   1   1   2   2   2	248   19   9   9   2   1   2	248 241 234 228 222 217 211 211 2 7
10 51.7N 135.6W _	11 51.3N 158.8W	
# 264   1	> 34 (65 (48) 19) (6) (3) 7 (4 (1) 2 (1) 1 1 1 1 1 2 (2) 108 - 2 322 (102) 110 (456) 5 5 5 5 2 (87 (34) 50 (35) 37 (23) 21 (10 (46) 5 (2)	248 241 234 228 228 227 217 217 2 7
13 50.3N 171.3W ** >64 2 2 2 2 4545	14 49.3N 174.1E ** >64 4 1 1 2 30-2 8 19 19 4545 **	* >64
N 248 19 7 5 2 1 1	0 24 15 137 17 8 3 5 3 7 1 1 1 1 72-1 124 311 317 4545 5 34 77 60 40 22 11 8 2 3 3 3 2 5 1 1 1 108-1 246 705 712 4546 5 28 82 47 65 49 38 17 9 6 15 4 1 6 6 11 6 11 6 150-1 337 1284 1306 4547 5 222 57 61 52 52 48 36 25 16 11 7 7 8 4 1 1 6 150-1 337 1284 1306 4547 5 222 57 61 52 52 48 36 25 16 11 7 7 8 4 1 1 3 16 204-1 404 2081 2133 4550 6 2 1 2 1 3 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	248 241 234 228 222 217 211 2 7
16 47.1N 161.2E # 264 4 1 12-1 5 6 6 4545 246 16 21 3 4 24-4 44 83 83 4545	17 45.8N 139.3E W 264 1 1 1 4544 W 24-2 9 18 18 4544 W 24-2 9 18 18 4544	N ≥64
N 24   56   54   19   6   4   1   1   1   2   48-1   124   26   7   262   4545   286   39   366   62   31   26   12   9   10   2   1   1   1   2   72-2   225   643   649   6456   286   71   65   55   47   30   17   13   11   10   1   1   4   1   3   88-3   392   1199   1215   4546   226   72   266   55   48   56   36   30   21   16   16   12   8   7   4   7   11   19   2   1   395   2000   2028   4583   62   27   66   47   44   14   48   31   32   23   31   21   5   6   14   63   31   25   61   48   43   31   25   61   48   48   48   48   48   48   48   4	0 241 18 9 7 6 1 1	241 241 234 228 227 217 211 2 7 2 4
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## WIND SPEED DURATIONS

4545	2 59.4N 172.0W 12:1 1 2 4545 16:7 19 38 39 4545	3 58.5N 151.6W + 264 1 12-1 2 2 4545 N 246 6 2 1 18-1 9 13 13 4545
11 4545 31 4563 155 4564 119 4590 152 4606 151 4823 158 4908 155 4933	0 341   77   21   10   8   5   2   3   3   3   3   3   3   3   3   3	0 241 181 10 2 1 3 1 1 1 1 1 2 10 6 2 5 2 1 1 1 1 102-1 200 677 686 4550 6 2 34 41 37 22 17 9 6 5 5 5 2 2 1 1 1 102-1 200 677 686 4550 6 2 32 0 1 1 1 102-1 200 677 686 4550 6 2 32 0 1 1 1 102-1 200 677 686 4550 6 2 32 0 1 1 1 102-1 200 677 686 4550 6 2 32 0 1 1 1 102-1 200 677 686 4550 6 2 1 2 1 1 1 102-1 2 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1
TH.	HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 46 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS
4 4544 45 4545 66 4549 21 4567 20 4567 20 4567 20 4567 20 4567 20 4567 20 4567 20 4567 21 4600 21 4800 21 4	N   264	N   248   8   9   2   2   2   1   1   1   4545     248   8   9   2   2   2   1   1   1   4545     248   8   9   2   2   1   1   1   4545     248   241   241   241   241   241   241   241   241   241     248   241   241   241   241   241   241   241     248   241   241   241   241   241     248   241   241   241   241   241     248   241   241   241   241     248   241   241   241   241     248   241   241   241     248   241   241   241     248   241   241   241     248   241   241   241     248   241   241     248   241   241     248   241   241     248   241   241     248   241   241     248   241   241     248   241   241     248     248
3 4544 43 4544	8 52.0N 172.9E * :64 6 1 1 1 1 30-1 9 16 16 4545 * :248 19 9 9 2 1 2 3 48-2 42 94 94 4545	9 51.7N 158.8E W 264 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
141 4544 114 4544 363 4548 679 4595 576 4628 668 4664 289 4701 566 4704 7 a TH	0 241 50 35 12 7 4 1 3 1 1 1	0 241 26 24 12 6 3 1 1
1 4545	11 51.3N 156.8W * 264 3 1 12-1 4 5 5 4545	# >64   1
65 4545 211 4545 552 4546 115 4550 067 4567 976 4701 491 4784 031 5139 TH	248   12   6   3   7   3   1   1   1   1   1   1   1   1   1	248 19 11 5 3
2 A545 61 A545 720 A545 763 A549 764 A569 764 A569 769 A569 769 A666 769 A661 769 A661	** 264	15 49.0N 128.4W  248 16 6 2 2 1 1 1 1 1 4545  0 241 27 20 8 5 1 2 1 1 2 1 1 1 1 4545  234 48 14 21 10 11 3 4 2 2 1 1 1 1 1 1 24 545  234 48 14 21 10 11 3 4 2 2 1 1 1 1 1 1 3 4555  234 48 14 21 10 11 3 4 2 2 2 1 1 1 1 1 1 1 3 3 3 7 87 7 8545  2 28 56 53 28 122 18 13 8 8 8 8 2 2 2 1 1 1 8 4 1 62 1 3 1 3 12 1375 1401 14553  E 217 50 58 29 40 28 19 23 15 19 10 13 10 5 5 3 23 264 1 350 2168 2239 4564  0 211 79 47 28 17 23 19 9 15 11 16 18 14 6 7 10 66 3 12 1 3 13 197 357 1407 4607  2 7 13 18 18 12 11 10 8 5 3 4 5 8 6 5 6 5 2 5 91 870 - 1 230 3812 4721 471 4719  6 12 18 24 3 3 3 4 5 3 3 4 1 5 8 3 4 1 5 8 3 4 67 12 18 - 1 137 3910 4651 4681  6 12 18 24 30 36 42 48 5 6 66 65 77 8 84 90 96+ MAX TE T T TE THE HOURS DURATION OF EVENTS
6 4545 83 4545 82 4545 82 4545 84 4546 215 4548 328 4583 382 4601 307 4678 361 4884 73 5084	## 264   1   1   1   45.44     240   5   1   1   2   1   1   45.44     241   18   9   7   6   1   1   1   45.44     241   18   9   7   6   1   1   1   45.44     241   18   9   7   6   1   1   1   45.44     242   9   18   18   45.44     243   29   22   12   10   10   6   2   1   2   1   1   72-1     245   29   22   12   10   10   6   5   3   3   4   2   1   72-1     25   26   79   30   27   16   17   8   6   5   3   3   4   2   1   64-1   201   644   678   4557     227   27   27   27   27   27   27	## 25.60   14.4.2 W   2.2   1   1   1   1   1   1   1   1   1
8 4545 15 4545 97 4545 38 4545 103 4552 174 4563 141 4583 113 4595 150 4734 02 5189 # TH	## 264   21 13   3   2   1   1   2   1   2   1   2   1   2   2	21 43.7N 128.7W   248   10   6   2   1   1   1   1   1   1   1   1   1

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* 364   4545   24-1   23   42   43   4545	# 264 3 2 18-2 5 9 9 4545 248 22 10 4 4 2 24-4 40 70 70 4545
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2 34 61 34 30 18 5 2 5 3 4 1 1 96-1 163 439 460 4547 5 28 75 56 37 28 19 15 12 6 3 7 2 2 1 1 4 144-1 268 985 1018 4548	2 34 78 42 39 21 15 6 4 1 1 1 1 1 102-1 211 561 569 4548 5 28 92 71 55 30 28 15 11 6 3 3 4 4 2 4 1 150-1 329 1130 1146 4553
22 89 68 44 36 37 21 13 8 15 9 5 6 4 6 3 16 252-1 382 1865 1935 4576	F 222 100 65 61 42 31 25 22 12 16 7 8 6 2 2 3 18 222-1 420 1971 1999 4555
2 17 48 52 46 24 31 30 20 18 17 9 9 7 9 10 5 39 330-1 374 2700 2868 4598 0 1 27 16 15 19 17 19 14 15 13 13 15 5 5 7 7 70 984-1 277 3569 3821 4641	E > 17 41 59 46 46 33 29 22 28 16 13 9 10 3 8 4 38 264-1 405 2780 2855 4598 D > 11 29 31 25 18 16 27 22 13 9 16 13 12 7 6 10 68 378-1 322 3511 3794 4657
7 13 9 4 8 10 7 6 7 10 8 10 3 4 4 7 86 990-1 196 3989 4384 4770	2 7 9 10 11 12 11 10 9 6 6 10 8 6 6 5 6 79 1248-1 204 3971 4447 4806
n > 4 6 1 2 4 2 3 1 5 2 3 3 2 1 1 63 1224-1 99 3551 4746 48/9	n > 4 3 5 1 2 1 3 1 2 2 2 2 3 2 50 1794-1 79 3766 4871 4969 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE 7 Te TH
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
25 40.2N 131.2E	26 39.5N 153.8E
W >64 4544 >48 2 6-2 2 2 2 4544	W 264 48 9 2 12-2 11 13 13 4545
0 241 3 1 1 1 1 42-1 6 15 15 4544	n ≥41 11 14 4 79 51 51 4545
> 34 18 7 3 1 2 1 54-1 32 68 68 4544 5 > 28 41 17 12 6 4 1 1 1 1 1 1 1 1 1 1 84-1 86 211 211 4548	> 34 46 28 14 3 6 1 36 1 36 1 98 192 193 4545 > 28 61 60 28 21 14 8 2 3 1 54 1 198 514 524 4545
P > 22 53 39 34 14 13 7 6 3 4 1 1 1 1 3 102 - 2 179 583 586 4558	2 > 22 97 65 66 37 20 24 16 8 1 5 1 2 1 2 1 1 1 1 1 1 1 90 × 1 1 347 1 128 1 1157 1 4558 1
2 17 60 55 30 27 29 14 11 9 6 6 7 1 1 2 7 228-1 265 1133 1150 4577 1 2 11 69 48 42 28 27 28 28 20 14 13 9 4 4 7 4 25 300-1 370 2239 2338 4638	E 217 103 79 69 53 42 25 18 21 12 9 12 5 6 4 5 114 2 463 1946 1986 4578 0 311 57 37 56 42 47 28 33 19 16 14 23 11 7 7 5 45 312 1 447 3117 3200 4603
7 70 38 34 28 29 12 24 23 16 17 10 14 11 3 6 55 372 1 390 3141 3314 4665	> 7 31 25 21 20 13 22 17 14 14 9 15 12 9 9 6 86 576-1 323 3879 4121 4772
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 MAX TE T To TH	n > 4 12 4 7 7 3 3 7 7 7 4 2 5 4 2 3 6 86 996-1 166 4090 4756 4987 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T 7 8 7H
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
28 36.1N 123.8W	29 35.9N 171.0W
* 2 64 Table 1	W >64 1 1 2 2 4545 >48 6 1 1 1 1 2 2 4545
0 341 3 2 1 1 1 4 4 5 4 5 1 1 1 4 4 5 4 5	N >41 16 3 4 4 1 30-1 28 55 59 45-5
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317 85 46 43 21 25 14 12 10 7 16 5 3 2 2 1 1 4 1 120 - 2 1 796 1 112 1 113 1 4550	E > 17 79 55 44 42 36 28 16 9 9 14 6 5 4 4 4 21 198 - 1 376 2009 2093 4576
2 2 339 2432 4574 25 16 33 22 21 20 19 12 12 11 10 10 6 6 9 2 76 498-1 335 3469 3678 4722	0 2 11 61 35 31 28 30 26 23 19 15 9 11 7 5 7 8 49 348-2 364 3058 3368 4635 2 7 30 11 19 20 9 14 12 11 9 11 7 11 5 7 7 80 576-1 263 3521 4136 4674
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6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 + MAX TE T T+ TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T Tw TH HOURS DURATION OF EVENTS
31 35.6N 155.2W	32 35.4 N _142.0 W
# >64	* > 64 4545
N >48 5 5 5 5 4544 D >41 26 9 2 18-2 37 50 50 4544	N 248 2 1 1 18-1 3 5 5 4545 D 241 7 5 2 18-2 14 23 23 4545
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5 28 47 41 22 73 15 6 5 1 2 1 1 1 1 120-1 155 469 475 4554 2 22 64 36 41 27 18 9 13 13 3 2 3 1 4 1 2 8 196-1 247 1056 1069 4555	5 28 31 26 13 14 9 4 2 2 1 3 666 3 105 320 321 4545 5 22 55 43 32 10 18 4 9 12 4 2 4 1 7 162 1 201 797 811 4545
2 17 66 30 34 34 31 36 10 16 16 4 1 7 1 5 13 13 12 13 16 1 1 31A 1 1758 1897 4569	E > 17 65 41 35 37 17 22 13 8 7 4 6 5 6 5 16 246-1 287 1527 1578 4557
D 11 59 35 28 25 24 25 22 21 10 14 8 7 7 4 5 49 450-1 343 2883 3219 4656 27 30 10 20 18 19 12 8 17 7 10 8 6 4 5 9 74 810-1 257 3466 4065 4700	D > 11 43 29 28 25 24 16 18 15 13 9 7 1 5 4 6 56 720-1 299 2732 2917 4578 > 7 44 16 16 17 16 11 16 8 5 10 9 6 6 3 4 80 816-1 267 3628 3956 4689
2 4 8 4 4 3 3 5 4 4 5 5 1 2 3 4 3 74 972-1 132 3900 4640 4864	2 4 9 9 4 9 3 6 1 2 4 2 1 4 3 4 71 990-1 132 4028 4566 4796
D 211 56 735 78 72 72 74 72 72 70 71 8 7 7 4 5 60 450 1 543 7683 72 73 74 4 5 60 1 543 7683 72 73 74 656 74 750 75 75 75 75 75 75 75 75 75 75 75 75 75	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH HOURS DURATION OF EVENTS
34 34.2N 155.1E	35 34.2N 163.8E
# > 64 4545	W >64 4545 >48 1 1 24-1 2 5 5 A545
N >48 2 2 4 4545 N >41 2 2 4 6 6 6 4545	N 248 1 1 2 5 5 4545 0 241 3 1 1 1 36-1 4 9 9 4545
2 36 14 4 2 1 1 42-1 21 35 35 4545 5 28 39 26 6 4 6 1 1 1 54-1 83 170 173 4546	> 34 14 6 3 2 1 1 1 48-1 27 56 56 4545 > 28 49 26 10 10 2 1 1 2 1 1 60-1 102 220 220 4545
P > 22 77 55 29 20 13 11 2 3 3 1 3 66-3 217 593 606 4547	0 28 49 26 10 10 2 1 1 2 1
E > 17 100 58 54 39 32 15 12 B 9 6 5 4 2 1 2 3 156 - 1 350 1310 1349 4557	F ~ 17 [90] 75 [52 [41] 30 [18] [19] 20 [11] 8 [ 5 [ 2   2   5   1 ] 7 ] 126 ~ 1 [ 386 [ 1607   1635 [ 4577 ]
	> 7 24 25 19 16 10 14 15 12 11 16 15 6 12 15 6 84 420-1 300 3716 3990 4664
2 × 4 8 6 5 8 8 9 3 7 8 10 4 6 4 4 4 93 6 8 - 1 187 3913 4467 4747	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TO TH
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH
	HOURS DURATION OF EVENTS
37 32.9N 119.4W	36 31.5N 127.7W
7 32.9N 119.4W	38 31.5N 127.7W
37 32.9N 119.4W 1 748 6543 0 748 6543 0 748 6543	36 31.5N 127.7W ** 246 N 246 D 241 4545
37 32.9N 119.4W 1 264 1 246 1 247 2 241 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	36 31.5N 127.7W    248
37 32.9N 119.4W    264	36   31.5N   127.7W   4545
37 32.9N 119.4W  1 248	36   31.5N   127.7W   4545
37 32.9N 119.4W    246	36 31.5N 127.7W    264
37 32.9N 119.4W  240  241  240  241  241  242  344  34543  344  34543  3	36 31,5N 127.7W    264
37 32.9N 119.4W    246	36 31.5N 127.7W    264
37 32.9N 119.4W  248  N 248  N 248  N 249  N	36 31,5N 127.7W    264
37 32.9N 119.4W  248  N	36 31.5N 127.7W    248
37 32.9N 119.4W  32.64  32.65  33.20 119.4W  34.54  34.54  34.54  35.28  36.22	36   31.5N   127.7W   4545   12.48
37 32.9N 119.4W    248	36   31.5N   127.7W   4545   12.44
37 32.9N 119.4W  32.64  N 241	36 31.5N 127.7W    248
37 32.9N 119.4W  32.64  N 241	36 31,5N 127.7W    248
37 32.9N 119.4W  32.64  N 241	36 31.5N 127.7W    248
37 32.9N 119.4W  32.64  0 241	36   31.5N   127.7W   4545   12.44
37 32.9N 119.4W  32.64  0 241	36 31.5N 127.7W    248

# NS (Cont'd)

# FALL

43 4545 43 4545 154 4545 460 4547 018 4548 935 4576 868 4598 821 4641 384 4770 146 4879 1 7 7	# 264   3   22   10   4   4	7 200 1 1 1 1 4595   241 23 14 5 2 1 1 1 2 1 1 1 60-1 1 1 1 1 4595   241 23 14 5 2 1 1 1 1 2 1 1 1 1 60-1 1 1 1 1 60-1 1 1 1 1 1 60-1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
4544 4544 68 4544 166 4558 50 4577 138 4638 190 4741	HOURS DURATION OF EVENTS  26 39.5N 153.8E  39.5N 153.8E	HOURS DURATION OF EVENTS  27  36.2N 127.4W  **264**   248**   348**   348**   341**   4
4545 4545 4545 4545 44 4546 528 4545 31 4550 432 4574 678 4722 83 4676 74 14	29 35.9N 171.0W    364	30 35.7N 176.1E    264
5 4544 5 4544 50 4544 175 4553 875 4555 897 4555 897 4569 219 4656 065 4700 640 4864 Fe YH	32 35.4 N 142.QW    264   2	33 34.8N 145.9E    248   1
4545 2 4545 6 4545 35 4545 73 4546 06 4547 549 4557 773 4622 118 4651 187 4747 7 TH	35 34.2N 163.8E  ** 264   1	36 33.7N 123.9E    264
4543 4543 4543 4543 4543 66 4543 59 4543 07 4548 04 4582 722 4742 39 4815	38 31.5N 127.7W  *** > 648	39 20.9N 177.3W    264
4545 4545 9 4545 9 4545 9 4545 50 4557 80 4557 87 4564 84 4716 85 4757 9 TH	# 204 N 134.9E  # 204 N 134.9E  # 204 N 134.9E  # 240  # 240  # 240  # 2	# 264   42   28.8N 139.2W   4545   12.48   13.2   1
		7 210

## **FALL**

## WIND SPE

# 264   1   1   1   1   1   1   1   1   1	44 27.9N 150.7E    27.9N 150.7E	# 264   7   7   7   7   7   7   7   7   7
N   264	# 264	W 264 N 248 D 241 > 34 D 241 S 28 S 5 P 222 27 E 217 93 D 211 120 S 27 59 A 2 4 G 6
## 264	# 264   4545   4	W 264
W 264	\$\begin{array}{c c c c c c c c c c c c c c c c c c c	* 264
N   264	\$\begin{array}{c c c c c c c c c c c c c c c c c c c	# 264 N 241 D 241 D 245 P 28 25 P 22 98 E 217 178 D 2 11 189 D 2 17 900 4 2 4 14 6
N   248   2	# 264	# 264 N 248 D 241 5 2 34 4 D 222 74 E 217 99 D 211 105 N 2 4 36 n 2 4 36
# 264   4545   4	# 264 # 4.1N 108.7E # 4545 # 5 4 # 5 # 5 # 5 # 5 # 5 # 5 #	W > 64 N > 48 D > 41 > 34 D > 24 P > 22 E > 17 T D > 11 B > 7 N > 18 P > 28 1 P > 29 E > 17 T D > 11 B > 24 C > 31 C >

T 12.2	44 27.9N 150.7E	45 27.8N 145.6W
4545	4545 48 4545	7 264 248
4545	0 ×41 + + + + + + + + + + + + + + + + + + +	N 248 D 241
4545	734 72 3 5 5 4545	2 34 2 1 1 1 30-1 4 10 10 4545
4546	28 11 3 1 2 1 30-1 18 33 33 4545	2 ≥ 28 4 3 4 2 2 2 48-2 15 46 46 4545
4554	E > 22 30 15 16 4 2 5 1 1 1 1 1 1 66-1 76 200 200 4547 E > 17 64 35 21 13 10 12 6 8 2 1 2 2 4 2 120-2 182 653 681 4554	E 222 48 16 14 5 4 3 3 2 1 1 1 1 3 72-3 101 283 289 4551 E 217 73 32 23 17 16 10 4 7 8 3 5 3 3 1 7 126-2 212 873 888 4553
4694	0 >11   108   42   42   22   29   18   22   17   12   9   12   6   5   6   5   16   174 - 1   371   1910   1976   4561	E 217 73 32 23 17 16 10 4 7 8 3 5 3 1 7 126-2 212 873 888 4553 0 211 96 40 27 19 20 17 19 11 7 8 3 4 7 2 47 396-1 327 2313 2416 4630
4974	> 7 86 44 36 26 23 16 18 16 14 12 9 14 12 8 6 59 300-1 399 3094 3261 4594	> 7 63 31 13 20 15 17 17 12 5 9 5 9 3 5 5 67 870-1 296 3470 3778 4840
1536	~ > 4 40 20 8 15 8 10 11 11 6 12 13 8 6 5 3 93 420-1 269 3763 4171 4687	n ≥ 4 22 18 10 8 4 6 6 8 7 5 4 3 1 2 3 63 1002-1 170 3809 4884 5230
	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS DURATION OF EVENTS
4545	# >64	# ≥64 23.5N 151.8W 4545
4545	N >48 4545	>48
4545	241 4545	D >41 4545
4545	34 1 6 1 1 1 4545	2 34 S > 28 5 1 5 4545
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4554	E > 17 7 26 12 1 8 3 2 1 1 1 78-1 137 286 293 4552	E > 17 93 36 23 10 12 4 5 4 6 5 1 1 3 3 2 5 180-1 213 784 792 4561
4554	2 > 11 12 51 32 29 28 18 13 20 14 10 13 2 6 3 4 19 216-1 434 1941 1993 4599 1 2 3 4 20 13 8 7 11 13 6 13 6 1 8 4 9 72 582-1 297 3395 3661 4746	0 2 11 120 40 37 15 18 13 3 6 10 4 5 9 5 3 4 47 540-1 339 2579 264 1 4683 2 7 59 18 17 9 9 8 12 7 3 6 8 9 2 3 4 60 888-1 234 3566 3938 4795
4602	4 22 1 1 0 9 7 1 3 6 4 3 6 4 5 2 5 68 1074-1 166 3812 4492 4890	2 7 59 18 17 9 9 8 12 7 3 6 8 9 2 3 4 60 888-1 234 3566 3938 4795 2 4 20 12 10 2 2 4 4 5 3 7 3 5 3 58 1794-1 138 3954 4730 5045
	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH
1	HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
	50 21.7N 162.7W	51 20.5N 177.1W
4545	* >64 >48	₩ ≥64 ≥48 4545
4545	5 > 4 ! 4545	N ≥41
4545	> 34 1 1 1 1 4545	> 34 1 1 1 2 4 4 4545
4545 4545	28 7 4 2 18-2 13 21 21 4545 E>22 39 13 8 4 6 1 2 2 1 60-1 76 183 184 4545	D > 28 9 2 1 1 1 36-1 13 25 25 4545 C > 22 31 16 3 10 4 1 1 3 1 1 1 1 90-1 72 212 212 4545
4568	5 > 1 1 100 28 20 11 17 12 9 6 14 1 2 3 1 1 4 180 1 228 838 843 4552	E 222 31 16 3 10 4 1 1 3 1 1 1 90 1 72 212 212 4545 E 2 17 81 21 20 11 8 8 9 2 3 3 1 5 3 3 1 8 162 2 187 788 828 4546
464	37 28 18 27 11 12 10 5 6 8 6 6 4 4 38 516-1 357 2465 2560 4584	D > 11 106 39 28 20 23 9 14 10 5 3 10 3 3 6 1 47 378-1 327 2428 2564 4603
4 68	87 18 21 14 14 5 11 8 8 7 5 2 3 5 7 71 720-1 286 3590 3785 4696	2 7 53 18 19 8 8 7 7 6 10 6 9 4 4 2 68 1218-1 229 3517 3927 4662
	6 '2 '18 24 30 36 42 48 54 60 66 72 '18 84 90 96+ MAX TE T T# TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T Ta TH
[	HOURS DURATION OF EVENTS	HOURS DURATION OF EVENTS
Į.	53 18.5N 120.7E	54 18.2N 168.8E
4545	* :64 3 3 3 4545	W >64 4545
4545	248 10 3 2 2 2 3 30-2 19 40 40 4545 2 44 23 5 3 3 1 1 3 1 1 1 1 60-1 42 113 113 4545	N 248 1 1 1 12-1 2 3 3 4545 N 241 1 2 1 1 2 2 4 4545
4545	> 34 56 24 12 9 11 2 5 3 1 2 1 1 1 1 84-1 128 370 371 4545	0 241 1 2 1 1 1 1 1 1 2 4545 2 34 5 2 1 1 1 1 1 1 48-1 11 32 32 4545
4548	28 17 35 19 11 9 8 8 9 5 7 4 2 3 2 3 6 138-1 243 915 929 4553	S > 28 12 7 2 2 1 1 1 1 1 78-1 27 82 83 4545
4563 4620	6 / 22   27   53   31   27   14   17   7   8   7   8   4   6   6   6   5   21   402 - 1   347   1780   1915   4559   5   27   23   23   23   23   23   23   23	E 222 56 26 14 8 2 5 2 4 2 1 2 1 1 2 114-1 126 382 392 4546
4709	0 21 57 29 22 6 7 6 11 8 5 2 1 5 2 3 68 900-1 232 3516 4043 4757	E 217 101 47 25 9 9 14 10 8 3 2 9 2 3 2 1 15 198-1 260 1153 1224 4561 D 211 89 24 16 16 14 15 8 8 7 3 6 5 7 7 4 52 714-1 281 2735 3101 4653
5104	> 731 10 9 9 3 3 4 3 5 1 48 1998 - 1 126 3521 4698 5001	2 7 57 18 9 4 7 5 3 5 2 2 3 1 3 3 55 1368-1 177 3560 4237 4778
5440	6 2 8 24 30 36 42 48 54 60 66 22 78 84 90 96+ MAX TE T T# TH	n ≥ 4 18 7 3 3 3 2 2 1 1 2 1 2 46 1830-1 90 3679 4753 4886
) · · ·	6 '7 '8 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH HOURS DURATION OF EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T Te TH
1		HOURS DURATION OF EVENTS
	56 17.6N 111.5W	HOURS DURATION OF EVENTS
4545	* >64 17.6N 111.5W 4545	HOURS DURATION OF EVENTS  57  14.9N 147.9E  4545
4545	* >64 4545 >48 4545	HOURS DURATION OF EVENTS  57 14.9N 147.9E  4545
4545 4545	* 248 4555 N 248 5555 D 241 5555	HOURS DURATION OF EVENTS  # >64   57   14.9N   147.9E
4545 4545 4545 4545	# 264   248   248   241   3   4   4   4   4   4   4   4   4   4	HOURS DURATION OF EVENTS    14.9N   147.9E
4545 4545 4545 4545	# 268	NOURS DURATION OF EVENTS   14.9N   147.9E
4545 4545 4545 4545 4545 4565	# 266   4595   4595   6-1   1   1   4595   6-1   1   1   1   4595   6-1   1   1   1   4595   6-1   1   1   1   4595   6-1   1   1   1   4595   6-1   1   1   1   4595   6-1   1   1   1   4595   6-1   1   1   1   4595   6-1   1   1   1   1   4595   6-1   1   1   1   1   1   1   1   1   1	NOURS DURATION OF EVENTS   14.9N   147.9E
4545 4545 4545 4545	# 266   4595   4	NOURS DURATION OF EVENTS   14.9N   147.9E
4545 4545 4545 4545 4545 4565 4704	# 266   4545   4	NOURS DURATION OF EVENTS    14.9N   147.9E     4545     4545
4545 4545 4545 4545 4545 4565 4704 5099	# 266   4585   20   4   4   4   4   4   4   4   5   1   7   5   7   3   5   4   78   840   1   77   79   84   99   1   1   1   1   1   1   1   1	NOURS DURATION OF EVENTS  14.9N 147.9E
4545 4545 4545 4545 4545 4565 4704 5099	# 266   4585   28   29   28   29   28   29   28   29   28   29   29	NOURS DURATION OF EVENTS  14.9N 147.9E  14.9N 14.9N 14.9N 14.P  14.9N 14.P  14.9N 14.P  14.9N 14.P  14.9N 14.P  14.9N 14.P  14.9N 14
4545 4545 4545 4545 4545 4565 4704 5099 5483	# 264   4545   4	HOURS DURATION OF EVENTS  14.9N 147.9E  14.9N 14.9N 147.9E  14.9N 147.9E
4545 4545 4545 4545 4545 4545 4545 454	# 264	HOURS DURATION OF EVENTS  14.9N 147.9E  14.9N 14.9N 147.9E  14.9N 147.9E
4545 4545 4545 4545 4545 4565 4704 5099 5483 *H	# 264	NOURS DURATION OF EVENTS   14.9N   147.9E
4545 4545 4545 4545 4545 4565 4565 4565	# 264	HOURS DURATION OF EVENTS  14.9N 147.9E  14.9N 14.9N 147.9E  14.9N 14.9N 147.9E  14.9N 14.9N 147.9E  14.9N 14.9N 14
4545 4545 4545 4545 4545 4545 4565 4565	# 264	HOURS DURATION OF EVENTS  14.9N 147.9E  14.9
4545 4545 4545 4545 4545 4565 4704 5099 5483 7H 4541 4541 4541 4541 4541 4541 4541 454	N 264	NOURS DURATION OF EVENTS   14.9N   147.9E
4545 4545 4545 4545 4545 4565 4704 6709 5483 711 4541 4541 4541 4541 4541 4541 4541	# 264	NOURS DURATION OF EVENTS   14.9N   147.9E
4545 4545 4545 4545 4545 4565 4704 5099 5483 7H 4541 4541 4541 4541 4541 4541 4541 454	# 264	NOURS DURATION OF EVENTS   14.9N   147.9E
4541 4541 4541 4541 4541 4541 4541 4541	N   248	## HOURS DURATION OF EVENTS    14.9N   147.9E     4545
4541 4541 4541 4541 4541 4541 4541 4541	# 264	## SOURS DURATION OF EVENTS    14.9N   147.9E
4545 4545 4545 4545 4545 4545 4546 4567 4567	N   264	## SOURS DURATION OF EVENTS    14.9N   147.9E   4545   454
4545 4545 4545 4545 4545 4545 4545 454	N   264	## SOURS DURATION OF EVENTS    14.9N   147.9E   4545   454
4545 4545 4545 4545 4545 4565 4764 4764	# 264	## SOURS DURATION OF EVENTS    14.9N   147.9E   14.9N   14
4545 4545 4545 4545 4545 4545 4546 1509 1509 1509 1509 1509 1509 1509 1509	M	## NOURS DURATION OF EVENTS    14.9N   147.9E   4545   15.2N   14.9N   147.9E   4545   15.2N
4545 4545 4545 4545 4545 4545 4546 1509 1509 1509 1509 1509 1509 1509 1509	N   248	## SOURS DURATION OF EVENTS    14.9N   147.9E
4545 4545 4545 4545 4545 4545 4546 1509 1509 1509 1509 1509 1509 1509 1509	N   264	## NOURS DURATION OF EVENTS    14.9N   147.9E
4545 4545 4545 4545 4545 4545 4546 1509 1509 1509 1509 1509 1509 1509 1509	N   264	## NOURS DURATION OF EVENTS    14.9N   147.9E
4545 4545 4545 4545 4545 4545 4546 1509 1509 1509 1509 1509 1509 1509 1509	N   264	## NOURS DURATION OF EVENTS    14.9N   147.9E   14.9N   147.9E
4545 4545 4545 4545 4545 4565 4764 4764	N   264	N   264

## WIND SPEED DURATIONS

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1	2 59.4 N 172.0 W  248 18 12 11 5 11	W 264 2 N 248 11 D 241 36 5 228 128 E 222 176 E 211 160 D 211 160 M 2 7 112 n 2 4 64
## 56.8N 174.8E    17.64   6   4   2	\$\begin{array}{c c c c c c c c c c c c c c c c c c c	W 264 7 N 248 75 D 244 753 S 234 122 S 228 183 E 222 7 75 E 217 727 D 211 197 L 2 7 56 n 2 4 23 .25
7 53.4N 184.7E  N 248 26 14 13 3 2	8 52.0N 172.9E    N   248   43   24   25   8   6	W 264 E N 248 34 D 241 54 2 34 92 S 228 128 E 2217 170 D 211 115 W 2 7 69 n 2 4 49
N   248   1   1	1   51,3N   158,8W   158,8W	W 264 1 N 248 34 N 241 89 234 59 2 22 224 E 217 97 D 211 93 E 2 2 224 E 2 17 97 D 2 11 93 E 2 7 52 E 2 6 26
13   50.3N   171.3W   171.3W	14   49.3N   174.1E   1.25-2   15   27   27   17219   1.26-2   152   319   321   17219   1.25-2   152   319   321   17219   1.25-2   152   319   321   17219   1.25-2   152   319   321   17219   1.25-2   152   319   321   17219   1.25-2   152   319   321   17219   1.25-2	W 264 1 N 248 30 D 241 65 2 34 95 S 278 127 E 222 201 D 211 196 L 2 7 126 n 2 4 42 25
N   264   7   3   2	17	W 264 2 N 248 26 D 241 83 234 142 S 228 197 E 222 189 D 211 107 A 7 555 D 2 4 22 25
19	N   264   3   1	# 264 27 N 248 62 N 241 62 2 34 85 P 28 28 P 28 17 P 21 17 E 21 7 31 N 2 4 55 n 2 4 55

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7219 7219 7219 7219 7219 7219 7219 7219	N   248   18   12   11   5   1   1   1   1   1   1   1	N   264   2   1
72:41 72:19 72:19 72:19 72:19 72:19 72:19 72:19 72:19 72:19 72:19 72:19	N   104   13   8   6   17   17   17   17   17   17   17	6 54.9N \$67.1W    246   2
72:8 72:8 72:8 72:8 72:8 72:8 72:8 72:8	8 52.0N 172.9E  4 04 43 24 25 8 6  2 40 43 24 25 8 6  2 40 95 65 40 21 27 3  2 41 95 65 40 21 27 3  3 41 95 65 40 21 27 3  4 1 95 65 40 21 27 3  4 1 95 65 40 21 27 3  4 1 95 65 40 21 27 3  4 1 95 65 40 21 27 3  4 1 95 65 40 21 27 3  4 1 95 65 40 21 27 3  5 28 99 137 129 60 56 84 11 4  5 28 99 137 129 10 16 46 13 6 13  5 28 99 137 129 10 16 14 60 13 6 13  5 28 99 137 129 10 16 14 60 13 6 13  5 20 99 137 129 10 10 16 14 60 13 6 13  5 20 99 137 129 10 10 16 14 60 13 6 13  5 21 137 14 132 10 132 132 16 12 12 12 18  5 21 137 14 132 10 132 132 15 13 14 13 6 13  5 21 137 14 132 10 132 133 13 5 11 14 1 29 27 25 100 70 24 16 2  2 5 5 75 11 14 1 29 27 25 100 70 24 16 2  2 5 5 75 11 41 27 2 3 4 5 10 20 30 60 90 180 360 0 MAX  TE T TA TH	9 51.7N 158.8E    248   34   17   8   6   1   1   11   17218     248   34   17   8   6   1   1   11   17218     248   34   26   21   14   1   1   17218     248   25   23   44   26   21   14   1   1   17218     249   29   36   64   74   48   6   1   1   1   17218     249   29   36   64   74   48   6   1   1   1   17218     25   28   129   119   107   85   129   27   8   1   1   1   17218     25   28   129   119   107   85   129   27   8   1   1   1   1   1   1     2   22   154   138   138   139   26   25   16   8   1   1   1   1   1     2   21   21   2
্ন ক্ষাৰ ক ক ক ক ক ক ক ক ক ক ক ক ক	1	12   50.9N   145.6W   1.20
718 718 718 718 718 718 718 718 718 718	14   49.3N   174.1E   1.25   15   27   27   17219   1.26   173   1.25   15   27   27   17219   1.25   15   27   27   17219   1.25   15   27   27   17219   1.25   15   27   27   17219   1.25   15   27   27   17219   1.25   173   1.25   1.2	15 49.0N 128.4W  248 30 11 4
217 217 217 217 217 217 217 217 217 217	17	18 45.6N 144.2W    248   26   13   6   1   3   1   1   1   1   1   1   1   1
7:9 7:9 7:9 7:9 7:9 7:9 7:9 7:9 7:9 7:9	## 264   3   1	21 43.7N 128.7W    248
4		

#### **ANNUAL**

#### WIND SPEE

22 42.8N 167.5W    264   30 16 10 2 1	23 42.4N 172.1E  ** 264 8 2 3	W 264 1 3 N 248 14 3 D 241 45 28 S 28
25 40.2N 131.2E  17718  248 4 1	28 39.5N 153.8E    264   1   1	# 264
28 36.IN 123.8W    248   2	29 35.9N 171.0W    248   22   5   4   2   1	W 264 1 8 N 248 1 8 D 241 5 1 12 S 244 106 60 1 S 284 106 60 1 S 28 102 113 1 E 2 17 200 106 1 D 2 11 212 104 1 S 2 7 162 50 6
31 35.6N 155.2W    248   14  3	32 33.4N 142.0W    248 3 3 1	W > 64 1 2 48 6 1 D > 41 16 5 > 34 45 20 1 S > 28 131 72 1 S > 28 131 72 1 E > 17 293 223 1 D > 11 28 223 1 D > 11 28 223 1 D > 17 167 107 6 n > 4 75 46 7 25 5
34 34.2N 155.1E    248   5	35 34.2N 163.8E    248   7   1   2	W 264 2 1 2 48 2 D 241 B 6 S 24 42 16 1 S 24 42 16 1 S 24 84 38 7 E 22 49 86 7 E 2 17 22 124 1 D 2 11 226 127 15 h 2 4 136 71 5 25 5
37 32.9N 119.4W  248 0 0.00-0 17217  248 0 0.00-0 17217  248 0 0.00-0 17217  248 0 0.00-0 17217  248 0 0.00-0 17217  25 28 67 28 7 3 1 0 0 0.00-0 17217  25 28 67 28 7 3 1 0 0 1.25-1 106 161 161 17217  25 28 67 28 7 3 1 0 0 1.25-1 106 161 161 17217  25 27 28 173 45 173 175 175 175 175 175 175 175 175 175 175	38 31.5N 127.7W    246	W 264
40	## 294 N 134.9E    246   2	W 264 2 1 1 1 1 2 1 2 2 2 2 2 2 2 2 2 2 2 2

<u> 222</u>

## WIND SPEED DURATIONS (Cont'd)

.5W	23 42.4N 172.1E	24 41.0N 134.9W
106 17219	₩ >64     Ø 2     3       > 28     55     36     13     4     6       1.75-1     114     215     228     17218	1 264 1 0.25-1 1 1 1 17219 1 248 14 3 4 0.75-4 21 32 32 17219
358 17219	0 >41 119 80 34 15 13 4 1 4 1 4.00-1 262 571 588 17218	D ≥ 41 45 28 11 5 3 2.00-1 92 172 172 172 172 19
1202 17219 2834 17219	> 34   194   112   85   65   72   10   1   1   4   25 - 1   540   1497   1533   172   18   5   28   252   179   144   102   154   38   10   3   4   6   25 - 2   868   3067   3122   172   18	2.50-3 228 583 583 17219 2.50-3 228 583 583 17219 2.50-3 228 583 583 17219
5753 17219	E > 22 288 206 183 145 286 93 41 13 10 9.25-1 1245 5629 5794 172 18	F 222 161 124 119 76 169 67 20 9 5 9.00 - 1 750 3383 3429 172 19
13235 17219	E > 17   221   180   185   130   370   149   73   38   44   2	E > 17   176   127   121   98   232   93   41   36   34   1
15428 17219	> 7 70 49 39 55 150 123 76 63 151 60 11 3 52 00 - 1 850 14065 15247 172 18	> 7 114 37 47 48 144 87 70 62 134 58 7 6 42.00 - 1 814 13088 14095 17219
7 16535 [17219] Te TH	75 5 75 1 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T THE TH	79 22 20 13 58 47 26 41 100 75 23 13 2 65.00 - 1 519 14131 16015 17219 25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 m MAX TE T To TH
}	DAYS DURATION OF EVENTS	DAYS DURATION OF EVENTS
.2E	26 39.5N 153.8E * >64 1 1 1 0.75-1 2 4 4 17220	27 38.2N 127.4W
6 17218	N 248 37 10 2 1 1 1 2.25-1 51 76 79 17220	>48 1 1 0.50 - 1 2 3 3 17219
172 17218	D 241 49 41 13 7 4 1 2.50-1 115 229 234 17220 234 172 1 3.00-1 315 709 715 17220	0 241 6 8 2 2 1 1.00-2 18 36 36 17219 234 29 19 7 8 4 3 2.75-1 70 174 177 17219
610 17218 1736 17218	2 ≥ 28 195 149 116 68 B5 13 3.00 - 2 626 1734 1758 17220	S 28 87 47 32 26 27 10 3.00 - 1 229 641 650 17219
3486 17218	E > 22 283 203 188 112 210 49 111 2 11 7.00-1 1059 3675 3747 17220 E > 17 283 280 204 167 348 122 46 11 3 7.50-1 1444 6390 6524 17220	E > 22 161 92 66 61 116 32 22 4 2 7.50-1 576 2280 2329 17219 E > 17 231 130 98 77 204 107 44 31 27 3 15.25-1 952 5476 5579 17219
7483 17218	0 > 11 208 15 164 145 399 208 116 66 59 3 15.00 - 1 1519 10838 11136 17220 > 7 117 80 72 71 242 177 130 85 143 39 3 24.00 - 1 1151 13596 14291 17220	D ≥ 11 195 103 84 62 194 128 86 51 104 34 3 1 31.25-1 1035 10656 11110 17219
1 12822 17218	2 4 42 30 25 20 92 59 65 42 119 97 16 6 1 77.25 - 1 614 14450 16185 17220	k ≥ 7 118 48 48 28 104 80 46 43 116 57 23 5 39.50 - 1 716 13009 14494 17219 2 4 63 28 20 14 41 34 30 15 69 72 19 21 3 84.25 - 1 429 13716 16178 17219
T∎ TH	.25 .5 .75 · 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T T* TH	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 00 MAX TE T T+ TH DAYS DURATION OF EVENTS
.8W	29 35.9N 171.0W	30 35.7N 176.1E
17219	W >64 2 1 0.50-1 3 4 4 17220 N >48 22 5 4 2 1 1.25-1 34 57 57 17220	₩ ≥ 64 1 0 . 25 - 1 1 1 17220
25 17219	0 >41 50 19 10 9 5 1 1,75 - 1 93 182 186 17220	D 241 51 12 9 3 4 1.25-4 79 134 134 17220
715 17219	> 34 102 64 46 16 17 5 3 3.00 - 2 250 581 588 17220 5 28 158 97 70 67 84 11 3 1 1 5.75 - 1 492 1521 1538 17220	2 34 100 60 38 10 20 1.75 - 2 236 490 492 17220 5 228 182 115 76 47 66 9 2 4.00 - 1 497 1347 1355 17220
2819 17219	E > 22 233 132 116 88 151 54 17 8 9 10.00-1 808 3294 3354 17220	≥ 22 243 156 126 95 181 43 12 7 2 5.50 - 1 865 3189 3251 17220
6308 17219	E > 17 267 151 120 103 257 103 39 22 27 3 18.00 - 1 1087 5787 5949 17220 0 > 11 216 137 116 96 302 145 72 48 87 18 1 24.00 - 1 1238 9891 10601 17220	E ≥ 17 280 148 142 128 243 121 41 17 19 1 1 13.75 - 1 1140 5725 5855 17220 D ≥ 11 212 134 120 116 334 161 90 38 68 12 2 2 24.00 - 1 1307 10033 10667 17220
14825 17219 16348 17219	2 7 154 74 79 45 175 137 100 60 129 45 7 1 40.25 1 1006 12751 14084 17220 2 4 60 33 23 31 69 59 41 27 119 74 26 6 56.00 1 568 13676 16022 17220	2 7 142 58 60 62 212 166 107 83 106 43 5 1 35.75-1 1049 12903 14053 17220
T. TH	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 @ MAX TE T T+ TH	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 00 MAX TE T To TH
200	DAYS DURATION OF EVENTS	DAYS DURATION OF EVENTS
.2W	32 35.4 N 142.0W	33 34.6N 145.9E
23 [17218] 144 [17218]	N 248 3 3 1 0.75-1 7 12 12 17219 D 241 23 11 4 1 1 1 1.25-1 40 66 66 17219	N ≥ 48 6 1 0.50-1 7 e e 177220
508 17218	>34   56   33   17   14   15	> 34 45 20 12 1 3 1 2.50 - 1 82 150 151 17750
1327 17218 2998 17218	\$ 228 95 57 45 31 45 14 2 1 5.00-1 290 930 931 17219 \$ 222 139 93 65 47 112 36 15 5 6 1 11.00-1 520 2271 2290 17219	S 228 131 72 34 14 18 1 3.50 - 1 270 550 552 17220 5 2 2 2 2 2 2 9 149 127 64 79 16 3 3 3.75 - 1 667 1828 1643 17220
5362 17218 9650 17218	€ ≥ 17 175 108 100 85 150 76 33 15 22 3 1 13.50 - 1 767 4238 4326 17219	E ≥ 17 293 223 186 136 226 60 13 4 2 B.50 - 1 1143 4140 4181 17720
13520 17218	0 > 11 218 104 77 68 237 128 64 45 75 12 3 30.00-1 1031 8449 8778 17219 > 7 218 76 63 48 156 118 78 58 120 52 4 2 34.00-1 991 11752 12714 17219	D ≥ 11 262 180 195 174 383 184 65 42 37 2 11.75 - 1 1524 8933 911 17220 2 7 167 107 99 108 327 186 104 67 140 16 1 26.50 - 1 1322 12618 13228 17220
15628 17218 Te TH	2 4 98 49 43 24 76 63 54 43 111 73 20 8 41.25 - 1 662 13528 15324 172 19	n ≥ 4 75 46 33 44 123 98 73 56 155 74 9 3 40.00 - 1 789 14282 15645 17220
	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T T. T	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 m MAX TE T T+ TH DAYS DURATION OF EVENTS
1E	35 34.2N :63.8E *>64	36 33.7N 123.9E
8 17220	N >48 7 1 2 1.00-2 10 17 17 172:0	W 264 0.00-0 17216 N 248 2 0.25-2 2 2 17216
34 17220 219 17220	D 241 727 4 3 2 1 1.50-1 32 53 53 17220 2 34 78 34 19 8 10 2.00-1 149 294 296 17220	D 241 8 6 0.50-6 14 20 20 17218 234 42 16 13 8 3 1.25-3 82 160 160 17218
743 17220	2 28 144 92 47 38 35 8 3 7 945 17225	2 ≥ 28 84 38 26 21 34 3 1 3.25 + 1 207 556 556 17218
2181 17220 4721 17220	E ≥ 22 200 100 115 104 113 38 6 1 1 1 5.75 - 1 835 2604 2661 17220 E ≥ 17 263 100 101 130 204 81 33 17 7 8.50 - 1 1193 5283 5395 17220	E ≥ 22 145 86 73 46 97 20 3 2 2 7.50-1 474 1648 1656 17218 E ≥ 17 212 126 116 105 177 71 14 9 9 1 11.25-1 842 3722 3767 17218
9549 17220 13515 17220	D > 11 219 140 139 112 365 195 97 53 54 B 1 22.00 - 1 1383 9927 10255 17220	D > 11 235 137 144 109 306 140 78 43 42 9 14.75 - 2 1244 8263 8457 17218
15772 17220	2 1 219 140 139 172 130 199 27 53 54 8 1 22 20 0 1 1393 9927 10225 17220 2 1 30 67 76 45 210 179 119 75 144 23 1 1 34 20 0 1 109 1 13251 13947 17220 2 2 1 30 67 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	2 7 186 93 90 59 233 165 96 66 107 35 1 1 37.00-1 1142 11799 12491 172 18 0 2 4 135 71 57 40 130 104 72 54 136 52 12 4 47.00-1 867 12933 14220 172 18
Te TH	25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T T+ TH  DAYS DURATION OF EVENTS	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T Te TH DAYS DURATION OF EVENTS
4 W	3831.5N_127.7W	39 29.9N 177.3W
17217	* >64	W 264 0.00 - 0 17220 248 1 1 0.50 - 1 2 3 3 17220
17217	$0 \ge 41$ 3 2 0.50-2 5 7 7 17219	D >41 7 2 2 1 1 1.00-1 12 21 21 17220
5 17217	> 34 14 7 3 0.75-3 24 37 37 17219 > 28 40 23 16 8 6 1.75-3 93 203 205 17219	>34 35 10 9 2 8 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
1081 17217 3396 17217	E > 22 143 45 42 28 55 11 3 3.75 - 1 329 950 953 17219	£ 22 140 74 65 49 63 20 7 5 1 5.25 - 1 424 1470 1487 17220
9560 17217	0 > 11 299 440 98 66 22 139 77 44 77 12 1 27.00 - 1 1170 8598 8894 17219	E > 17 219 119 86 75 149 54 20 7 18 1 11.75 - 748 3411 3463 17220 D > 11 325 129 119 106 289 130 58 46 55 11 18.25 - 1 1258 8153 8419 17220
14103 17217	2 7 243 92 75 45 137 99 75 56 114 53 12 3 34.25 - 1 1004 12572 13279 17219 2 4 112 51 22 24 71 60 43 30 94 82 19 10 1 83.75 - 1 619 13874 15733 17219	2 7 234 98 67 61 199 155 90 58 128 40 4 1 33.25 - 1 1133 12253 12669 17220
Te TH	.25 5 .75 1 2 3 4 5 10 20 30 60 90 180 360 WMAX TE T To TH	72 4 119 45 44 19 83 82 70 45 120 84 18 3 46 .00 - 1 732 14043 1563 1 17220 25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 \$\times\$ MAX TE T = TH
0'4	DAYS DURATION OF EVENTS 41 29.4N 134.9E	DAYS DURATION OF EVERTS
17219	₩ ≥64 0.00~ 0 17220	42 28.6N 139.2W >64   0.00-0   17219
5 17219 31 17219	N > 48 2 1 1 1.00-1 3 6 6 17220 0 > 41 6 2 1.50-1 8 17 17 17220	N 248 2 0.25-2 2 2 17219 0 241 1 1 0.50-1 2 3 3 17219
118 17219	> 34 25 2 3 1 1.75 - 1 30 47 47 17220	> 34 9 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
424 17219 1443 17219	20 55 27 12 6 6 1 1 1 4.50 - 1 108 233 233 17220 € 22 127 75 55 31 35 8 4 1 1 1 5.25 - 1 337 953 957 17220	228 35 15 12 4 4 1 2.25-1 71 148 149 17219 228 22 82 36 26 21 41 5 1 1 4.75-1 213 651 654 17219
3451 17219 8722 17219	E > 17 244 170 108 71 122 39 15 7 4 7.50 - 1 760 2759 2762 17220	E > 17 [254 [99 [63 ] 36 [99 ] 31 ] 20 [6 ] [6 ] [7.50 - 1   614   2233 ] 2242 ] 17219
13326 [17219]	0 > 11 339 182 131 90 328 138 70 36 41 4 13.50 - 1 1330 7745 7884 17220 > 7 229 122 97 80 233 138 13 61 129 28 19.50 - 1 1265 12066 12399 17220	0 2 11 305 131 100 78 200 115 64 35 78 12 18.25 - 1 1213 8056 8273 17219 2 7 227 94 63 36 127 115 51 55 113 67 8 2 43.75 - 1 958 12330 13252 17219
15842 [17219] To TH	n > 4 98 56 34 24 102 90 65 58 157 68 11 4 43.00 - 1 767 14092 15363 17220	$n \ge 4[116]39[24]28[76[50]44[26[89]76[19]10[1]] [                               $
I	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 00 MAX TE T T T TH DAYS DURATION OF EVENTS	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 WMAX TE T To THE DAYS DURATION OF EVENTS

## WIND SPEED DURATIONS (Cont'd)

43 29.2N 125.9E	W >64 44	27.9N 150.7E
N 248 1 1 1 0.50-1 2 3 3 17219 N 241 9 1 2 1 1.00-1 13 21 21 17219	N ≥48	0.00-0 17218 0.00-0 17218 0.75-1 3 5 5 17218
> 34 38 17 8 3 7 2 2.25 - 2 75 170 175 17219	>34 15 6 3 1	1.50-1 25 42 42 17218
28 91 43 31 30 32 12 4 3.75 2 243 755 763 17219 2 22 103 78 68 51 110 32 18 7 6 9.00 - 1 561 2331 2353 17219	28 51 16 10 5 4 1 1 1 E 22 146 58 39 21 36 7 1 1 1	3.75 - 1 E8 177 177 17218 4.75 - 1 309 779 779 17218
E > 17 270 93 93 56 183 85 34 23 35 1 11.75 - 1 873 4814 4928 17219 D > 11 28 96 09 78 28 11 54 47 86 24 2 24.50 - 1 1132 9314 9934 17219	E > 17 228 137 90 58 112 31 14 4 2 D > 11 411 174 151 95 280 131 51 32 29 3	5.50-2 676 2354 2395 17218 13.75-1 1367 6966 7111 17218
2 7 176 80 61 44 175 176 68 54 177 43 14 2 33.50 - 1 953 12325 13637 17219 6 2 4 91 59 43 29 86 76 40 43 100 61 11 13 2 65.50 - 1 661 13150 15360 17219		23.25-1 1405 11473 11932 17218 31.75-1 933 14083 15164 17218
25 5 75 1 2 3 4 5 10 20 30 60 90 180 360 Ø MAX TE T TO THE DAYS DURATION OF EVENTS	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 © DAYS DURATION OP EVENTS	
46 26.1N 170.8E	₩ >64 <b>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</b>	25.0N 119.4W
N >48 0 0.00 0 17220 0 0.00 0 17220 0 0.00 0 17220	N >48 N >41	0.00 - 0 17219 0.00 - 0 17219
234 3 1 0.75-1 4 6 6 17220	234 2	0.25-2 2 2 2 17219
28 35 10 9 1 1 1 3.25-1 56 106 108 17220 E > 22 (02) 38 31 12 22 9 2 2 1 5.25-1 219 626 629 17220	> 28 6 1 1 E 22 44 10 7 1 8	1.00-1 8 12 12 17219 1.75-2 70 135 137 17219
E > 17 250 105 70 47 98 33 14 3 4 7,25 - 1 624 2137 2194 17220 D > 11 380 171 132 88 235 96 62 34 54 6 177.50 - 1 1258 7210 7405 17220	E > 17 252 90 54 32 54 6 2 1 D > 11 629 216 133 87 238 129 55 32 24 4	5.25-1 491 1150 1171 17219 14.0C 1 1547 6828 7003 17219
2 7 295 112 87 59 200 131 81 55 121 38 4 1 33.00 - 1 1184 11760 12454 17220 1 1 126 56 49 36 94 75 48 44 142 65 19 5 39.50 - 1 769 13518 15427 17220	n > 4 125 42 55 24 70 47 39 27 107 74 18 11 2	26.75-1 1239 12173 12841 17219 67.00-1 641 13959 15795 17219
25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 WMAX TE T THE DAYS DURATION OF EVENTS	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 @ DAYS DURATION OF EVENTS	MAX TE T TE TH
# 264 22.6N 128.0E	₩ ≥64 50	21.7N 162.7W
N 248 2 1 0.50-1 3 4 4 17220 N 241 5 3 2 1 1.50-1 11 23 23 17220	N 248 1 D 241 1	0.25-1 1 1 17220 0.25-1 1 1 177220
> 34 20 8 6 1 3 2 3.00 1 40 100 100 17220 5 26 89 32 26 5 20 3 4 4 4.00 2 179 466 472 17220	\$ 34 5 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.25-1 6 10 10 17220 3.00-1 42 91 91 17220
F > 22 100 68 52 27 81 34 12 5 6 8.75 - 1 473 1845 1859 17220	F > 22 125 38 25 13 27 8 1 4	4.75-2 241 648 654 17220
E 217 [297] 037 93 37 133 69 41 29 177 2 12.75.2 807 4099 4229 17220 0 211 284 134 96 42 168 118 58 48 68 23 4 27.25.5.1 1128 8589 1166 17220 2 7 297 107 79 35 148 118 72 52 123 46 7 4 22.50.1 1088 12293 13424 17220	E > 17 311 85 60 34 128 43 18 10 9 2 D > 11 484 151 105 69 187 92 57 29 64 27 6	12.00-1 698 2760 2797 17220 27.75-1 1271 8604 8875 17220
A 116 38 33 26 56 37 45 32 107 67 19 11 1 82.50 - 1 586 13375 15938 17220	n > 4 144 50 33 20 67 47 35 44 89 57 16 23 1 1	77.25-1 1027 12942 13783 17220 96.75-1 627 14320 15912 17220
.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 WAX TE T T# TH DAYS DURATION OF EVENTS	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 © DAYS DURATION OF EVENTS	MAX TE T TO TH
52 19.2N 127.8W	₩ ≥64 3	18.5N 120.7E
N 248 1 1 1 1 17219 0 241 4 2 0 0.50-2 6 8 8 17219	N 248 17 4 2 2 4 1 1 2 2 4 1 2 2 4 1 2 2 4 1 2 2 4 1 2 2 4 1 2 2 4 1 2 2 4 1 2 2 2 4 1 2 2 2 4 1 2 2 2 4 1 2 2 2 2	1.25-4 29 59 59 17220 2.50-1 78 181 181 17220
> 34 11 2 1 1 2 1 1 2 1 1 50 - 2 17 34 36 17219 5 28 66 23 6 4 6 1 2.75 106 194 200 17219	> 34 123 44 21 14 31 8 3 1 5 2 8 225 74 38 25 64 30 10 6 6	4.25-1 245 654 555 17220 8.75-1 478 1704 1725 17220
22 24 58 38 28 39 13 4 3 1 7,50-1 423 1077 1115 17219 E > 17 563 17 1643 78 161 55 28 10 8 1 15 25-1 1218 4011 4113 17219	> 22 200 132 64 50 104 51 38 11 17 5	16.75-1 780 3592 3770 17220 24.00-1 986 5817 6195 17220
D > 11 (435) (44) (118) 67 (192) (198) 75 (46) (120) 35 (4) 27, 25 - 1 (1345) (11243) (11958) (17219)	D > 11 428 161 109 47 144 97 52 24 71 33 5 4	37.50-1 1175 9210 9942 17220
> 441 14 14 6 10 10 4 9 20 33 16 20 6 4 109 75 - 1 209 11924 16809 17219	n > 4 218 93 74 40 89 63 41 28 85 4 11 9 2 3	83.25-1 1185 11332 12890 17220 117.00-2 803 12538 15387 17220
25 5 75 1 2 3 4 5 10 20 30 60 90 180 360 @ MAX TE T T# TH DAYS DURATION OF EVENTS	.25 .5 .75 1 2 3 4 5 10 .20 30 60 90 180 360 4 DAYS DURATION OF EVENTS	MAX TE T TO TH
55 17.6N 138.5E	₩ ≥64 56	17.6N 111.5W
N 248 8 0.25 8 8 8 17219 0 241 14 4 3 1 1 1 2.25 1 23 48 48 17219	N 248 1 0 241 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.25-1 1 1 1 17213 0.75-1 6 8 8 17213
> 34 39 16 10 6 8 3 3 3 00 2 82 205 205 17219 > 28 104 28 30 15 34 12 4 1 4 50 1 228 713 714 17219	> 34 8 4 2 1 S > 28 18 11 3 3 2	1.00-1 15 26 26 17213 1.75-1 37 73 73 17213
E > 22 200 82 57 24 86 33 9 7 7 1 11 00 - 1 5:5 2007 2049 17219 E > 17 303 133 96 49 162 74 41 21 17 4 16 - 1 980 4590 4752 17219	E 222 84 24 19 6 12 3 E 217 287 92 56 27 45 9 1 1	3.00-1 148 309 312 17213 4.50-1 518 1157 1169 17213
0 > 11 396 130 99 70 157 110 63 36 94 28 2 2 25 35 1 1187 9371 9936 17219 2 7 200 109 95 44 121 63 51 40 96 52 14 6 1 68 25 1 976 12100 13747 17219	D > 11 742 317 190 118 232 88 35 18 6 1	11.00-1 1747 5754 5871 17213
n > 4 [10] 49[51] 23[62[35] 25[22] 67[72] 20[13] [2] [105.25 1 551 13111 15991 17219	n > 4 229 94 63 39 134 84 76 47 116 63 15 7	42.75-1 967 13763 14992 17213
25 .5 75 1 2 3 4 5 10 20 30 60 90 180 360 00 MAX TE T T+ TH DAYS DURATION OF EVENTS	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 @ DAYS DURATION OF EVENTS	MAX TE T Te TH
58 14.5N 127.7E 17216	<b>%</b> >64 <b>59</b>	14.0N 160.6W 0.00-0 17220
N 248 2 2 17216 D 241 3 3 1 2 17216	N 248 1 D 241	0.25-1 1 1 1 17220 0.25-1 1 1 4 17220
> 34 15 9 5 3 4 1 1 50-2 36 82 83 17216 > 28 51 17 13 5 15 9 1 1 4.75-1 112 349 352 17216	> 34 3 1 1 5 5 28 20 3 3 1 1 1	0.75-1 5 8 11 17220 1.25-1 28 44 47 17220
E > 22 [446 53 30 16 40 22 12 3 4 7.00 - 1 328 1201 1221 17216 E > 17 267 96 64 46 80 44 28 11 20 1 120 1 12.50 - 1 657 2969 3042 17216	E 222 131 34 25 9 14 8 2 E 217 394 115 98 35 96 19 19 7 9 3	3.25-2 223 507 514 17220 12.50-1 815 2925 2977 17220
D > 11   404  174  173  60  141  69  53  34  52  24	D > 11 427 139 137 63 156 16 58 36 86 27 4 5 5	50.25-1 1254 10106 10900 17220 160.00-1 603 12962 15580 17220
7		188.75 - 1 180 111245 16829 17220
DAYS DURATION OF EVENTS	DAYS DURATION OF EVENTS	
61 12.0N 156.7E	W >64 ->48	4.1N 108.7E 0.00-0 17201 0.00-0 17201
D >41 1 1 17220	D >41	0.00-0 17201
2 > 28 27 2 3 5 1 2 50 - 1 36 82 82 17220	\$ > 26   1	0.50-1 1 2 2 17201 1.00-1 6 12 12 17201
€ > 22 193 39 15 5 20 5 3 3 4.75-1 225 544 557 17220 € > 17 560 87 71 25 93 23 12 11 7 1 10.75-1 694 2277 2329 17220	E > 22 4 6 2 4 1 1 1 E > 17 7 12 4 4 2 4	2.75-1 18 55 55 17201 3.75-2 33 128 139 17201
D > 1 1 27 1 37 1 38 1 39 1 50 39 2 1 50 39 3 2 2 3 5 5 5 7 1 20 5 5 5 7 1 20 5 5 5 7 1 20 5 5 5 7 1 20 5 5 5 7 1 20 5 5 5 7 1 20 5 5 5 7 1 20 5 7	0 2 11 71 23 18 10 13 10 4 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6.75-1 156 589 631 17201 29.25-1 563 2237 2503 17201
.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 t0 MAX TE T T# TH		61.50-1 1002 6408 7127 17201
DAYS DURATION OF EVENTS	DAYS DURATION OF EVENTS	
1		

## NS (Cont'd)

### ANNUAL

17219 3 17219 21 17219 175 17219 175 17219 1763 17219 1735 17219 1928 17219 1934 17219 1936 17219 1936 17219 1936 17219 1937 17219	## 27.9N 150.7E  ## 264	# 264
17220 17220 17220 6 17220 6 17220 6 17220 108 17220 109 17220 17220 17220 17220 17220 17220 17220 17220 17220 17220 17220 17220 17220 17220 17220 17220 17220 17220	47 25.0N 119.4W  248	# 264
8 17220 4 17220 23 17220 100 17220 472 17220 1859 17220 9166 17220 9166 17220 9166 17220 91720 91859 17220	1720   1720	\$20.5N   177.1W   \$20.5N   177.2N   \$20.5N   177.1M   \$20.5N   177.2N   \$20.5N   \$20.5N   \$20.5N   \$20.5N   \$20.5N   \$20.5N   \$20.5N   \$20.5N   \$20.5N   \$
17219 17219 17219 17219 18 17219 18 17219 200 17219 115 17219 1958 17219 1958 17219 1969 17219 1719 1719	\$\begin{array}{c c c c c c c c c c c c c c c c c c c	18.2  168.8  E    1.2    1.3    2.1    1.0
17219 8 17219 48 17219 205 17219 714 17219 7049 17219 752 17219 754 17219 757 17219 769 17219 769 17219 769 17219	17.64	14.0   147.9
17216 2 17216 12 17216 13 17216 352 17216 352 17216 352 17216 352 17216 352 17216 353 17216 353 17216 354 17216 357 17216 357 17216 358 17216 359 17216	\$\begin{array}{c c c c c c c c c c c c c c c c c c c	## 264
17220 17220 17220 17220 17220 217220 227220 2377220 2477220 2477220 2477220 3477220 3477220	# 264   0.00 - 0   17201     248   0.00 - 0   0.00 - 0   17201     248   0.00 - 0   0.00 - 0   17201     248   0.00 - 0   0.00 - 0   17201     248   0.00 - 0   0.00 - 0   17201     249   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   17201     240   0.00 - 0   0.00 - 0   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240   0.00 - 0   0.00   0.00     240	## 264   0.00-0   17189   17189   0.00-0   0.00-0

#### **WINTER**

N   264	N 248   2   1   1   2   1   1   2   1   2   2	264 248 241 234 228 222 217 211 2 7 2 4
# 264 1	N 248	264 248 241 234 228 222 217 211 2 7 2 4
7 53.4 N 184.7E N 248 1 1 1 0 0 5£A-7 9 3056 4861 4863 N 248 1 1 1 0 0 5.5 A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	248	>48 >48 >41 >34 >28 >22 >17 >11 > 7 > 4
10 51.7N 135.6W  2 64	N 248 2 1 1 1 1 1 1 1 3 1 30 SEA 4 37 4069 5411 5486 N 2 2 1 2 2 3 3 4 4 1 1 3 1 1 6 1350 -1 99 4152 5451 4780 N 2 3 4 8 13 10 10 13 13 7 6 6 5 2 3 8 1 2 2 1 8 3 690 -1 205 3719 1987 4564 S 2 8 40 129 22 9 0 12 19 11 9 15 9 6 6 7 6 8 30 306 -1 205 3719 1987 4564 S 2 8 40 129 22 9 10 12 19 11 9 15 9 6 9 7 6 8 30 306 -1 343 2366 2441 4408 E 17 9 17 9 17 9 17 9 17 9 17 9 17 9 17	264 248 241 234 228 227 217 211 2 7
13   50.3N   171.3W   7.2	N 240 2 2 2 4 1 1 1 2 1 1 1 2 2 2 2 1 4 7 56A-1 69 4341 4776 4906 N 241 4 7 66 4 6 2 3 4 2 3 4 2 3 4 2 1 4 4 59 5EA-1 159 4376 4407 4766 0 2 4 4 3 2 3 4 2 3 4 2 1 4 4 3 59 5EA-1 115 4276 4407 4766 0 2 4 4 3 2 3 4 2 1 4 4 3 2 3 4 2 1 4 4 3 2 3 4 2 1 4 4 3 2 3 4 2 1 4 4 3 2 3 4 2 1 4 4 3 2 3 4 2 1 4 4 3 2 3 4 2 1 4 4 3 2 3 4 2 1 4 4 3 2 3 4 2 1 4 4 3 2 3 4 2 1 4 4 3 2 3 2 1 4 2 1 4 4 3 2 3 2 1 4 2 1 4 4 3 2 3 2 1 4 2 1 4 3 2 3 2 1 4 2 1 4 3 2 3 2 1 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	248 241 234 228 222 217 211 2 7
18	N 248 4 1 1 1 2 1 1 1 1 2 1 1 1 1 1 2 2 56A-7 27 4460 5754 5801 N 244 2 3 3 1 1 1 1 2 1 1 1 1 1 34 5EA-3 5 1 3729 5572 5727 N 24 7 6 5 1 1 2 4 5 4 2 3 3 3 4 56B-1 102 3602 44374 4867 5 2 8 8 1 1 9 6 7 10 10 8 7 8 5 8 6 7 5 5 78 648-1 196 3430 3721 4541 5 2 2 5 1 33 28 26 19 17 24 13 10 12 9 8 6 6 4 47 384-1 313 2884 2808 438 5 6	264 248 241 234 228 222 217 211 2 7
## 264   1   1   1   1   1   1   1   1   1	N 248 1 1 2 1 1 1 1 1 1 2 8 58A 6 34 4480 5788 5845 6 0 24 1 2 2 3 4 4 5 2 1 1 1 6 5 58A 1 10 2 2 3 3 8 1 2 2 4 4 4 5 2 1 1 1 6 5 58A 1 1 10 2 2 3 3 3 6 3 1 2 2 2 4 4 5 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	264 248 241 234 228 227 217 211 2 7

y 224

#### WIND SPEED INTERVALS

2 59.4 N 172.0 W    10   SEA-7   10   3194   4677     10   4674   3   3   1   2   1   1   2   3   1   1   48   526-7     241   3   3   1   2   1   5   1   1   2   3   1   1   48   526-5   71   5.762   5864   6066     241   3   3   1   2   1   5   1   1   2   3   1   1   48   526-5   71   5.762   5864   6066     241   3   3   5   4   2   7   8   3   4   5   9   3   6   3   4   68   526-2   143   4419   4716   5263     248   16   19   9   11   4   12   14   71   10   9   6   3   3   6   6   2   16-1   209   3268   322   4491     242   29   22   26   16   31   20   10   15   12   11   6   4   2   5   5   46   450-1   260   2453   2513   4370     243   244	3 58.5N 151.6W    248   7
N   264	8
8 52,0N 172.8E  \$ 240	W 266   1   1   1   1   1   1   1   1   1
11 51.3N 158.8W    248   2   1   1   1   1   1   1   1   30   5EA-8   37   4069   5411   5486     248   2   1   1   1   1   1   1   1   30   5EA-8   37   4069   5411   5486     241   7   4   5   2   2   3   4   4   1   1   3   1   60   1350-1   99   4152   4561   4760     34   78   31   10   10   31   37   6   5   2   3   8   2   1   83   690- 205   3719   3987   4564     5   28   40   29   22   20   21   9   33   9   15   9   6   12   2   7   4   67   436-1   285   3127   3260   4418     5   28   40   29   22   20   21   9   13   9   15   9   6   12   2   7   4   67   436-1   285   3127   3260   4418     5   21   90   70   53   28   30   17   20   6   5   7   7   5   1   16   196-2   361   1618   1652   4348     5   21   19   37   37   23   12   5   5   6   1   3   3   1   2   84-2   293   762   782   4337     6   2   2   2   2   2   2   2   3   3   3	12   50.9N 145.6W   1   1   1   1   1   1   1   27   56.4   1   1   1   1   27   56.4   1   1   1   1   27   56.4   1   1   1   27   56.4   1   27   56.4   1   27   56.4   1   27   56.4   1   27   56.4   1   27   56.4   1   27   56.4   1   27   56.4   1   27   56.4   1   27   56.4   1   27   56.4   1   27   56.4   1   27   27   56.4   1   27   27   56.4   1   27   27   56.4   1   27   27   27   27   27   27   27
16	15 49.0N 128.4W    248
17 45.8N 139.3E  N 264  N 468  4 1 1 1 1 1 2 1 1 1 1 20 5EA-7 10 3071 4600 4606  D 241 2 3 3 1 1 1 1 2 1 1 1 1 1 34 5EA-3 57 3729 5572 777  > 24 7 6 5 1 2 4 5 4 2 3 3 4 56 1350-1 102 3602 4474 4667  > 28 21 9 6 7 10 10 8 7 8 5 8 6 7 5 5 74 4648-1 192 343 3727  > 29 27 51 33 28 28 19 17 24 13 10 12 9 8 6 6 6 4 47 364-1 1313 2684 2606 4387  0 21 96 61 44 31 17 5 8 6 3 1 2 1 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18
20 44.28 192.7W N 266 1 1 2 1 1 1 1 1 1 2 1 1 00 \$\tilde{\text{SEA}} - 6 34 4480 5766 5845 N 266 1 1 2 1 1 1 1 1 1 2 1 1 0 \$\tilde{\text{SEA}} - 6 34 4480 5766 5845 D 261 7 2 3 3 6 1 2 2 4 4 5 2 1 1 65 \$\tilde{\text{SEA}} - 6 34 4480 5766 5845 S 24 32 15 11 10 17 12 10 13 10 4 7 7 6 4 4 66 10 36 1 237 3753 3068 4740 S 28 64 40 37 14 23 11 17 10 7 12 4 6 10 8 2 54 466 1 33 1 237 3753 3068 4740 S 28 65 05 04 7 25 77 13 12 14 13 11 6 9 7 6 3 2 75 432 1 350 2 152 1 232 4339 E 21 7 98 47 38 39 39 23 13 15 10 4 8 5 5 3 3 3 3 3 9 264 1 32 1 306 1420 4334 D 21 1 84 50 32 16 13 9 3 3 6 2 2 7 11 1 1 126 1 222 6 58 60 4337 D 2 1 8 30 30 14 8 6 2 3 3 4 5 8 8 6 6 7 7 78 84 90 96+ MAX    T	21. 43.7N 128.7W  248 1 9 \$\frac{1}{2} \cdot \text{4} \\ \text{2} \\ \text{1} \\ \text{2} \\ \text{2} \\ \text{2} \\ \text{3} \\ \text{2} \\ \text{3} \\ \text{2} \\ \text{3} \\ \text{3} \\ \text{3} \\ \text{2} \\ \text{4} \\ \text{3} \\ \text{2} \\ \text{2} \\ \text{4} \\ \text{1} \\ \text{2} \\ \text{2} \\ \text{3} \\ \text{3} \\ \text{2} \\ \text{4} \\ \text{3} \\ \text{3} \\ \text{2} \\ \text{4} \\ \text{3} \\ \text{3} \\ \text{3} \\ \text{3} \\ \text{4} \\ \text{4} \\ \text{3} \\ \text{3} \\ \text{3} \\ \text{3} \\ \text{4} \\ \text{4} \\ \text{4} \\ \text{5} \\ \text{3} \\ \text{5} \\ \text{6} \\ \text{5} \\ \text{3} \\ \text{5} \\ \text{3} \\ \text{5} \\ \text{4} \\ \text{5} \\ \text{3} \\ \text{5} \\ \text{3} \\ \text{5} \\ \text{6} \\ \text{5} \\ \text{3} \\ \text{5} \\ \text{5} \\ \text{5} \\ \text{5} \\ \text{5} \\ \text{3} \\ \text{5}
	11

স্মান্ত নির্দাদ করিব নির্দাদ ক

6658-47-7

22 42.8N 167.5W    248   1   1   3	23
25 40.2N 131.2E  ***********************************	26 39.5N 153.8E 44 1 1 2 1 1 1 2 1 1 1 1 1 30 SEA - 8 9 2992 1438 444 1 2 1 3 5 4 1 1 1 1 1 1 1 1 2 1 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 1 1 2 1
28   36.1N   123.8W   36.1N   123.8W   36.1N   123.8W   36.1N   123.8W   36.1N   123.8W   36.1N   36	## 264   1   9   SEA-8   10   3025   4471   4473
35.6N 155.2W  35.6N 155.2W  36.6   1	32. 35.4N 142.0W  340
34.2N 155.1E  34.2N 15.1N 15  34.2N 155.1E  34.2N 155.1E  34.2N 155.1E  34.2N 155.1E	35   34.2N   163.8E   3490   4390
37 32.9N 119.4W  32.9N 119.4W	N   248
## 264	## 29.48   13.4.08   8 SEA-6   8 2944   4390   4390   1390

## (Cont'd)

#### **WINTER**

7 4451   \$ 28 45 99 46 26 28 17 7 4336   \$ 211 112 22 28 7 12 7 28 28 17 7 4333   \$ 211 112 22 28 7 28 17 12 7 28 28 17 12 7 28 28 17 12 7 28 28 17 12 7 28 28 17 12 7 28 18 18 18 18 18 18 18 18 18 18 18 18 18	6 6 13 4 6 7 3 4 3 87 534-1 236 3646 3794 4456 21 71 71 78 4 6 6 7 3 8 7 8 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	\( \begin{array}{c c c c c c c c c c c c c c c c c c c
6 5215 5 22 34 21 17 20 20 14 4 35 27 5 15 4425 5 22 5 35 59 44 35 27 15 4425 5 21 20 20 14 35 27 15 4425 5 21 20 20 14 35 27 14	39.5N 153.8E  1 1 2 9 SEA-B 9 2992 4438 4441  1 1 30 SEA-3 38 3789 4699 4747  3 4 4 6 7 1 3 2 5 86 790-1 168 3967 4139 4556  3 1 4 4 6 7 1 3 2 5 86 790-1 168 3967 4139 4550  10 10 12 13 7 8 6 12 13 71 528-1 288 3542 3608 4454  27 26 16 11 14 11 13 7 5 25 216-1 414 2678 2730 4355  28 13 12 8 6 7 4 2 1 3 120-1 484 1907 1915 4343  4 6 1 1 1 2 1 72-2 410 893 897 4334  2 1 2 1 2 2 72-2 410 893 897 3344  2 2 1 2 2 8 4 60 6 72 78 84 90 96+ MAX 7E 7 T+ TH	27   36.2N   127.4 W   264
8 4035 5 228 40 31 20 10 10 10 12 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	29	30 35.7N 176.1E  N 264
9 5192 5 28 25 16 14 11 8 9 7 7 4 7 4 4 37 12 2 25 15 1 4 4 3 3 3 7 4 1 4 3 3 3 3 7 4 1 4 3 3 3 3 7 4 1 4 3 3 3 3 7 4 1 4 3 3 3 3 3 7 4 1 4 3 3 3 3 3 7 4 1 4 3 3 3 3 3 7 4 1 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	8         7         8         6         6         3         7         10         4         63         816-1         248         3371         348         4681           11         17         8         6         13         6         5         4         6         38         402-2         304         2432         2470         4493         9         9         7         4         5         2         3         2         11         150-1         261         1147         1158         4344           5         2         4         1         3         1         1         2         108-2         173         526         528         4334	33 34.69 145.0E  N 248
4768   5 28 25 18 10 15 7 9	2   54-1 226 387 387 4338 24-1 104 127 127 4335 42 48 54 60 66 72 78 84 90 96 + MAX TE T To TH	36 33.7N 123.9E  N 248
4333   2 7 99 50 40 26 21 15   4333   2 4 94 38 21 11 3 2   1	2 1 72-1 173 336 339 4333 42 48 54 50 66 72 78 84 90 96+ MAX TE T To TH REVAL BETWEEN EVENTS	39
5177 E 222 10 7 6 2 1 4 4 580 E 217 65 17 18 13 13 12 2 6 376 D 211 61 580 49 37 41 38 4 346 E 7 119 20 64 27 37 12 2 7 14 38 6 7 119 20 64 27 37 12 2 7 14 38 6 7 14	41	# 264   8 SEA-8 8 2944 4399 4399     248

#### **WINTER**

#### WIND SPE

43 28.2N 125.9E *>64 8 5EA- 6 8 2944 4390 4390 >48 8 5EA- 6 8 2944 4390 4390	# 264	₩ ≥64
241	0   0   0   0   0   0   0   0   0   0	N 248 0 241 2 34 S 28 8 E 222 28 1 E 217 65 2
2 17 70 22 8 18 77 10 16 8 8 8 15 8 7 4 5 147 306 1 305 2444 2499 4414 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	E 2 17 45 19 18 12 20 16 17 9 12 7 8 10 7 8 6 69 546-1 283 3463 3512 4430  2 2 11 28 69 73 43 37 23 19 20 10 8 5 6 1 8 5 13 186-1 466 2023 2049 3466  2 2 131 82 70 41 12 7 9 7 6 1 3 1 1 1 78-1 373 968 990 4338  2 4 139 58 16 8 2 1 1 1	E > 17 65 2 D > 11 95 4 > 7 98 4 n > 4 70 2
MOURS INTERVAL BETWEEN EVENTS 48 28.1N 170.8E	HOURS INTERVAL BETWEEN EVENTS  47  25.0N 119.4 W  >64	<b>₩</b> ≥64 <u> </u>
248	248	N ≥48 D ≥41 ≥34
\$\frac{5}{2}\$ \begin{array}{c c c c c c c c c c c c c c c c c c c	28 1 10 SEA-8 11 3189 4634 4638 222 28 SEA-3 29 3868 5329 22 2 1 26 50304 1 156 4039 4530 5329 2 1 1 17 47 39 18 19 17 10 7 15 7 11 7 6 6 7 3 44 390-1 373 2419 2471 4353	228 4 . E ≥22 15 ! E ≥17 55 ! D ≥11 99 3
0 > 11 100 52 22 54 55 71 20 11 12 72 13 8 8 8 4 3 70 306-1 421 2233 2247 345 5 7 137 96 48 32 221 12 6 6 3 3 1 2 1 1 2 2 132-1 370 1016 1016 344 1 2 2 132-1 4 (a) 55 14 6 2 2 1 1 2 1 2 1 2 2 132-1 370 1016 1016 344 1 2 4 (a) 55 14 6 2 2 1 1 (a) 57 14 6 1 2 18 24 30 36 42 48 54 60 66 72 78 98 90 96+ MAX 7E 7 To 7H HOUSE INTERVAL BETWEEN EVENTS	2 7 121 41 46 27 13 16 16 12 7 6 3 1 1 1 2 8 156-1 320 1181 1199 4342 110 47 22 8 5 5 2 2 2 2 2 1 7 72-1 208 459 463 4335 6 12 18 24 30 36 42 40 54 60 6 72 78 84 90 96+ MAX TE T T = TH HOURS INTERVAL BETWEEN EVENTS	> 7 111 5 n > 4 83 3
49 22.6N 126.0E 2.6N 126.0E 2.	50 21.7N 162.7W 8 264 8 SEA-8 8 2944 4390 4390 8 SEA-7 8 2719 4441 4442	₩ >64 N ≥48
0 241	0 241	0 ≥41 ≥34 S ≥ 28 E ≥ 22 9
E > 17 81 31 18 19 12 13 16 6 6 12 4 6 2 5 3 55 486-1 289 3092 3268 4569  D > 11 100 43 35 20 27 16 17 7 10 1 5 4 7 5 19 234-1 320 1578 1621 4390  > 7 100 50 28 16 19 4 10 3 5 6 2 1 1 1 14-1 253 730 736 4355  > 4 80 30 9 5 2 2 2 1 1 4 48-1 145 241 241 4335	E 2 17 45 15 17 7 8 5 4 6 5 6 7 5 5 1 2 67 822-1 205 3366 3546 4425 D 2 11 94 34 34 12 02 16 18 12 9 13 2 1 6 5 5 3 33 408-1 323 2041 219 3424 E 2 7 12 40 38 29 12 14 16 6 4 2 3 1 3 3 138-1 292 943 959 4334	D > 11 100 3 2 7 83 4
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T= TH HOURS INTERVAL BETWEEN EVENTS	n > 4 100 4.
\$2	53 18.5N 120.7E	₩ ≥64 - ≥48 D ≥41
> 34	2 24 28 5 6 1 3 2 2 3 3 2 1 1 1 1 2 38 SEA-5 95 4522 5260 5484  2 28 41 18 13 3 5 3 3 3 5 7 3 5 2 2 560 SEA-1 171 4006 5049 5697  2 22 78 46 23 12 13 7 10 8 10 10 6 3 5 4 5 7 5 2 2 560 SEA-1 171 4006 5049 5697  2 21 78 46 23 12 13 7 10 8 10 10 6 3 5 4 5 5 5 4 39 342-1 292 2114 2237 4444	S 28 1 1 1 E 222 26 5 E > 17 70 2
0 > 11   134   23   23   18   66   12   5   9   5   2   6   2   2   3   4   12   234 - 1   304   1176   1177   4339   2   7   71   32   10   9   4   1   5   2   1   3   3   1   2   1   1   102 - 1   146   420   421   4336   433   15   4   3   15   4   3   1   1   1   1   1   1   1   1   1	D 211 95 99 33 10 21 11 11 3 9 6 5 2 1 2 18 216-1 276 1246 1280 4393 2 7 106 41 26 14 14 5 7 4 6 1 2 1 1 1 1 1 1 120-1 230 648 654 4345 2 4 74 26 19 5 3 1 1 1 1 1 1 1 120-1 230 648 654 4345 2 4 74 26 19 5 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D > 11 105 4 > 7 107 4 > 2 106 2 6 1
HOURS INTERVAL BETWEEN EVENTS  55 17.6N 138.5E  1.6   55A-8   8   7944   4390   4390	HOURS INTERVAL BETWEEN EVENTS  56  17.6N 111.5W  264  8 264  18 SEA-8 8 2944 4389 4389	<b>*</b> ≥64 [
N 248 9 3'08 4554 4555 9 241 1 3 \$\frac{54}{2}\$ 9 15 3836 15149 5164 2 463 5855 1595 1549 5164 2 463 5855 1595 1595 1595 1595 1595 1595 1595	248   8   5EA - 8   8   2944   4369   4369   4369   2340   2341   2344   2354   2354   2354   2354   2355   2354   2355   2354   2355	N 248 0 241 234
\$\frac{1}{2} \cong \frac{26}{26} \frac{12}{2} \frac{5}{3} \frac{1}{4} \frac{1}{3} \frac{2}{2} \frac{4}{4} \frac{2}{3} \frac{3}{4} \frac{1}{4} \frac{53}{3} \frac{54A-3}{3} \frac{119}{4025} \frac{4025}{5246} \frac{5591}{5591} \\ \frac{2}{6} \frac{22}{427} \frac{47}{91} \frac{13}{3} \frac{17}{16} \frac{13}{13} \frac{15}{15} \frac{15}{14} \frac{14}{16} \frac{10}{15} \frac{5}{4} \frac{4}{4} \frac{64A-1}{44A-1} \frac{336}{336} \frac{2439}{2439} \frac{2514}{2514} \frac{4421}{4421} \\ 0 \times 1 \left  10745 \frac{30}{3} \frac{16}{16} \frac{11}{14} \frac{4}{4} \frac{6}{8} \frac{3}{3} \frac{1}{2} \frac{1}{1} \frac{110}{10} \frac{20-1}{2} \frac{27A-1080}{2780} \frac{680}{109} \frac{109}{337} \frac{336}{439} \frac{2439}{2514} \frac{25246}{4821} \\ 0 \times 1 \left  10745 \frac{3}{3} \frac{30}{16} \frac{16}{16} \frac{11}{14} \frac{4}{4} \frac{6}{3} \frac{3}{5} \frac{1}{2} \frac{1}{1} \frac{1}{10} \frac{20-1}{2} \frac{27A-1080}{278} \frac{27A-1080}{109} \frac{100}{3} \frac{336}{278} \frac{2439}{2514} \frac{2524}{4821} \\ 0 \times 1 \left  10745 \frac{3}{3} \frac{3}{17} \frac{1}{16} \frac{13}{13} \frac{1}{16} \frac{1}{13} \frac{1}{1	2 28	5 ≥ 28 10 € ≥ 22 67 1 € ≥ 17 122 3 D ≥ 11 192 3
2 7 75 29 18 11 8 6 6 6 3 1 3 66-3 160 416 417 4337 8 4 62 19 9 6 1 1 3 56-1 97 157 158 4334 8 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T Te TH HOURS INTERVAL BETWEEN EVENTS	2 7 1 1 2 4 3 3 2 1 1 5 8 9 8 4 3 1 1 1 2 1 1 38 1 3 70 9 13 9 19 4 3 3 6 9 6 2 7 1 2 5 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 7 113 n 2 4 73 4 6 1
58 14.5N 127.7E 7 264 8 55A-8 8 2944 4390 4390 4390 4390 4390 4390 4390 4	59 14.0N 180.6W W 264 8 SEA-8 8 2944 4390 4390 248 8 SEA-8 8 2944 4390 4390	₩ ≥64 >48
0 241	0 241	D 241 234 6 2 5 28 6 1 E 222 25 1
2 > 1 67 21 88 6 12 11 13 5 10 2 4 3 6 3 3 62 5 4 - 1 246 3350 3440 4800 0 9 11 33 36 25 19 17 14 12 10 6 6 9 4 3 2 4 18 5 25 - 1 318 1504 1522 4390 0 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	E 217 61 27 18 8 9 4 11 6 3 7 6 4 6 3 5 56 2046 - 1 234 3552 3735 4679 D 211 14 35 39 14 13 7 7 5 10 2 5 1 3 2 5 25 286 1 287 1519 1526 4344 2 7 99 21 6 9 8 1 5 4 2 3 2 1 2 1 1 96 - 1 175 482 485 4335	E ≥ 17 77 2 D ≥ 11 121 4 . > 7 110 4
6 12 16 24 30 36 24 56 56 57 27 68 4 90 96 6 MAX TE T TO THE HOURS INTERVAL DETWEEN EVENTS	n > 4 34 11 12 2 4 1 1 1 1 60-1 66 145 145 4334 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS INTERVAL BETWEEN EVENTS	6 1 6 1
61 12.0N 158.7E **264 8 \$£A-8 8 2944 4390 4390 N 248 8 \$£A-8 8 2944 4390 4390 D 241 8 \$£A-8 8 2944 4390 4390	82 4.1N 108.7E **264 8 5EA-8 8 2944 4390 4390 N 248 8 5EA-8 8 2944 4390 4390 D 241 8 5EA-8 8 2944 4390 4390	# 264 N 248 D 241
2 24 4 1 9 5EA-9 9 3312 4627 4630 2 7 8 27 8 27 8 27 8 27 8 27 8 27 8 27	334 8 55A-8 8 2944 4390 4390 4390 5 5 28 10 55A-8 11 3200 4437 4442 5 222 1 1 1 1 1 1 1 1 1 1 1 55A-7 1 16 2615 4413 4442	\$ 20
2 7 46 16 11 5 6 2 1 2 2 1 1 1 2 2 2 4 3 3 5 6 3 4 1 1 14 252 1 275 1166 1169 4 342 1 2 2 4 2 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4	0 2 11 19 8 7 6 2 3 2 2 1 1 1 2 2 23 \$\xi_{A}\$ 7 7 8 3439 4506 4 2 2 2 5 \$\xi_{A}\$ 7 6 2 20 22 6 6 6 4 1 4 4 5 3 1 2 2 7 \$\xi_{A}\$ 8 10 2 7 \$\xi_{A}\$ 8 10 2 7 \$\xi_{A}\$ 8 10 2 7 \$\xi_{A}\$ 1 10 9 12 7 5 5 3 4 2 2 1 34 1042 1 311 2270 2546 4093	E > 17 D > 11 h > 7 6 3 n > 4 216 6
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 MAX TE T T TH HOURS INTERVAL SETWESH SVENTS	6 12 18 24 30 36 42 48 54 50 56 72 78 84 50 96 4 MAX TE T TO TH HOURS INTERVAL BETWEEN EVENTS	6 12

N   264	## 264
N   Sea	## >64
N   264	N   264
** 264   1   1   1   1   1   1   1   1   1	N   264
17.6N   111.5W   11.5W   11.	\$\partial \chi \chi \chi \chi \chi \chi \chi \chi
N   264	00   12.2N   112.6E   12.48   390   4390
## 266	03   2.1N   123.6E     246

#### WIND SPEED INTERVALS

1 64.0N 166.7W	2 50.4N 172.0W
# 264	2
E 217 16 16 10 12 14 13 9 10 6 7 11 5 3 2 2 56 936-2 194 3255 3519 4650 D 211 3225 233 00 17 8 15 12 4 9 2 4 7 3 3 3 40 372-1 234 1997 2064 4382 2 7 46 43 35 23 14 17 10 5 4 4 5 3 3 5 11 1 210-1 224 1089 1094 4322 1 2 4 57 45 25 10 7 8 3 2 3 1 1 1 1 1 1 102-1 174 471 471 474 4246 6 12 18 24 30 3 64 2 48 5 60 66 72 78 84 90 96+ MAX TE T T T+ THOURS INTERVAL BETWEEN EVENTS	E 217 25 20 16 19 13 14 11 9 11 8 7 9 2 2 2 60 652-1 228 3150 3281 4538 D 211 515 33 50 27 19 12 7 19 2 8 2 5 8 1 3 3 1 34 372-1 259 1829 1829 1820 1820 1820 1820 1820 1820 1820 1820
4 56.8N 174.8E	W 264         SEA-6         6         2208         4265         4265           1 248         SEA-6         6         2208         4265         4265           0 241         SEA-7         8         58A-7         8         2702         4369         4373           0 241         SEA-7         SEA-7         10         2802         4866         4480           2 34         2         2         1         1         1         23         58A-7         29         3645         5210         5266           2 28         1         1         2         3         3         2         1         1         4         25         3         3         2         1         1         4         25         3         3         2         3         1         1         4         2         3
2 > 17 38 20 16 25 11 41 13 8 6 8 3 12 9 4 8 8 22 600-1 246 2703 2834 4205  D > 11 64 46 33 30 19 16 16 10 10 7 6 7 4 4 4 2 18 216 15 26 15 3 4258  > 7 67 67 67 33 12 14 9 1 7 4 2 1 3 1 5 162-1 220 744 783 4250  n > 4 71 27 18 4 2 4 1 1 1 1 1 2 1 1 90-1 133 300 303 4241  6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T T TH  HOURS INTERVAL BETWEEN EVENTS	E 217 25 14 19 16 17 11 16 8 15 5 4 3 9 8 1 60 1086-1 251 3778 3411 6525 0 211 53 39 38 28 20 18 17 18 8 6 7 7 11 7 2 3 31 33 38 28 28 20 18 17 18 8 6 7 7 11 7 2 3 31 33 30 38 28 28 20 18 17 18 36 7 8 7 11 7 2 2 3 31 33 30 36 24 23 19 8 11 9 5 2 1 2 1 4 144-1 279 1070 1078 4266 0 2 4 87 44 21 13 4 3 12 2 1 1 1 1 114-1 178 391 394 4253 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T Te TH
7	8 52.0N 172.9E    248   2
HOURS INTERVAL BETWEEN EVENTS  10 51.7N 135.6W	HOURS INTERVAL BETWEEN EVENTS
1	1
13   50.9N 17 .3W   17 .3W   18 .40   18 .40   19 .40	14   49.3N   174.1E   49.3N   174.1E   128.4   49.3N   174.1E   49.3N   174.1E   49.3N   174.1E   49.3N   174.1E   49.3N   4264   4265   4264   4265   4264   4265   4264   4265   4264   4265   4264   4265   4264   4265   4264   4265   4264   4265   4265   4264   4265   426
16 47.1N 161.2E *>64	17 45.8N 139.3E * 264
248   1   2   1   2   1   1   1   1   3   1   33   5EA - 6   22   2807   4512   4536     241   3   2   3   1   2   1   1   1   3   3   3   5EA - 5   30   3467   5198   5294     242   34   16   3   8   5   3   3   5   2   3   4   1   2   3   49   5EA - 4   111   4376   5375   5549     242   39   37   28   118   9   13   16   11   7   8   8   10   8   5   7   792 - 1   201   3420   3461   5276     242   39   37   28   118   9   13   16   11   7   8   8   10   8   5   7   792 - 1   291   3268   352   4540     2   17   26   27   36   25   25   20   18   7   7   5   10   9   6   10   5   34   780 - 1   331   2319   2337   4460     2   17   36   37   728   19   20   8   12   6   6   5   4   1   1   1   3   366 - 1   316   1173   1183   3364     2   17   36   49   22   11   22   6   1   1   1   1   1   30 - 1   220   519   522   4241     3   4   4   8   24   4   24   48   54   60   66   72   78   84   90   96 +   MAX   TE   T   Tw   TH	N 248
19   44.3N 177.7W   44.3N 177.7W	# 264   1
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH NOURS INTERVAL SETWERN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TO TH HOURS INTERVAL BETWEEN EVENTS

# S

#### **SPRING**

W 4265   4265   4265   4264   4265   4265   4265   4488   4519   4590   5114   3519   4650   2046   4382   1094   4322   474   4265   7 Tr. TH	2 59.4N 172.0W    248	3 58.5N 151.6W    264
B 4265 4265 4711 4724 5011 5126 5529 5690 4613 5053 1814 4640 7834 4305 1639 4258 163 4258 163 4258	HOURS INTERVAL BETWEEN EVENTS  58.8N 141.9W  5	HOURS INTERVAL BETWEEN EVENTS  6
E 4765 4265 4359 4364 4553 4574 4353 4574 4372 5026 5350 5678 4051 4720 3147 4436 1804 4347 900 4245 350 4241	HOURS INTERVAL BETWEEN EVENTS  8 52.0N 172.9E  1	HOURS INTERVAL BETWEEN EVENTS  9 51.7N 156.8E  W 264
1W   4265   4265   4425   4425   4425   4425   4431   55459   5561   5468   5789   4228   5050   7346   435   4318   517   426   738   4247   74   74	11 51.3N 158.8W    248	12
W 4264 4265 44564 4592 5720 5502 5504 5734 4570 5039 3310 4401 2468 4323 1374 4267 600 4261 7 7 H	14	15   49.0N   128.4W
2 43'8 4320 45'12 4536 5'98 5294 5375 5649 4641 5278 3352 4640 2337 4402 1:83 4304 527 4241 7 TH	17 45.8N 139.3E  18 264	18
W 4265 4268 4392 4970 4696 5073 5547 5642 3960 4676 2974 4415 2089 4303 1048 4264 480 4242 167 4241 7 TH	20 44.2N 152.7W  > 48 1	21 43.7N 128.7W  248 6 6 52.06 243.7 326 2436 2436 2436 2436 2436 2436 2436

### **SPRING**

### WIND SPI

22 42.8N 167.5W    264	23	# 264 N 248 D 241 S 234 S 220 12 E 227 141 D 211 53 N 2 4 60 6
**264	*** *** **** *************************	W 264 N 248 N 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
28   36.1N   23.8W   36.1N	\$29   \$35.9N   17.0W	W ≥64 1 ≥48 N ≥41 D ≥41 S ≥ 28 P ≥ 22 P ≥ 22 P ≥ 22 D ≥ 11 58 N ≥ 7 98 N ≥ 4 104 6
31 35.6N 155.2W  348	32 35.4N 142.0W  348	W 264   248   248   248   254
34.2N 155.1E  34	\$\begin{array}{c c c c c c c c c c c c c c c c c c c	W 264 N 248 D 241 S 229 3 E 222 8 E 227 26 D 211 75 k 2 7 96 n 2 4 99
37 32.9N 119.4W  364	38 31.5N 127.7W    240	W 264 N 248 D 241 2 34 P 228 E 217 18 D 211 66 D 2 7 82 h 2 4 66 6
# 20.0 M 100.0 W    20.0 M 100.0 W     20.0 M 100.0	# 264   6   \$\colored{\c	W >64 N 248 D 241 S >28 P >22 E >17 D > 11 B > 7 E > 27 D > 11 B > 7 E > 66 h > 4 66

23	24
28 39.5N 153.8E    248 3	27 36.2N 127.4 W N 248
29 35,9N 171.0W    248	30 35.7N 176.1E    248
32 33,4 N 142.0 W  1 248	33   34.6N   145.9E     248
35 34.2N 183.8E    34.2N 183.8E   183.8	36 33.7N 123.9E    248
38 31.5N 127.7W    248	39 29.9N 177.3W    264
# 264 # 134.98    28.4N   134.98   29.4N   134.98   29.4N   134.98   29.4N   134.98   29.4N   134.98   29.4N   134.98   29.4N   27.4N   27.4N	# 264   6 SEA-6 6 2208 1208.2W   120.2W   120.2W
	1/

# 264   43   28.2N   125.0E    # 266   6   526.6   6   2706   4264   4264   N 248   6   6   526.6   6   2706   4264   4264   N 248   7   7   7   7   7   7   7   7   7	## 264   44   27.9N   150.7E
46 26.1N 170.8E  1 248	# 25.0N 119.4 W  26.0
49	\$\begin{array}{c c c c c c c c c c c c c c c c c c c
32 19.2N 127.8W    264	18.5N   120.7E   12
35 17.8N 138.5E 17.6N 138.5E 18.5N 138.5E 18	17.8N   111.5W   12.64
36	14.0N   160.6W   12.66   12.
81 12.0N 156.7E 12	0

## Cont'd)

#### **SPRING**

7 48	248
## 25.0N 119.4W    264	## 20.5N 151.8W  248
N   264	51 20.5N 177.1W  248
\$3\$ \$18.07.8 \text{267.6}\$ \$\text{\$\frac{1}{2}\text{40}}\$ \$\text{\$\frac{1}{2}\text{40}}\$ \$\text{\$\frac{1}{2}\text{40}}\$ \$\text{\$\frac{1}{2}\text{40}}\$ \$\text{\$\frac{1}{2}\text{40}}\$ \$\text{\$\frac{1}{2}\text{40}}\$ \$\text{\$\frac{1}{2}\text{40}}\$ \$\text{\$\frac{1}{2}\text{\$\frac{1}\text{\$\frac{1}{2}\text{\$\frac{1}\$	34 18.2N 198.8E  18.2N 198.8E
17.8N   111.5W   111.5W   12.64   12.65   12	14.9R   147.9E   14.9R   147.9E   14.9R   147.9E   14.9R   14.79E   14.9R   14.79E   14.79E
39 14.0N 160.6W    244	12.2N   112.6E     240
82	83 2.1N 123.6E  1 246

#### **SUMMER**

1 84.0N 188.7W    248	2 59.4 N 172.0 W 264	W 264
## 264	2 34 1	W 264
7	2 24 1 1 1 1 1 2 1 1 2 1 1 2 2 1 1 1 2	W 264
10 51.7N 135.6W   248	11	# 264
13 50.3N 171.3W  1 246	14   49.30   174.1E   174.1E	W 264
# 244   1   6   55A - 6   2206   4224	## 45.0N 139.3B  ## 248   248	W 266   248   248   25   25   25   25   26   27   26   27   27   27   27   27
10	20	# 264   248   D 241   234   3     5 280   1   E   222 21 4 5     E 217 399 14 9   D 211 52 48 9   D 211 52 48 9   C 7 67 40 320   C 7 67 40 320   C 7 67 40 320   C 7 68 9   C 7 68 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9

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#### WIND SPEED INTERVALS

8 .7 W   8  4224   4224   6  4224   4224   6  4224   4224   6  4224   6  4420   6  6  6  6  6  6  6  6  6  6  6  6  6	2 59.4 N 172.0 W  248	3 56.5N 151.6W    264
4.8E 18 4224 4224 18 4224 4224 11 4350 4355 16 4129 4172 15 4066 4225 15 3663 4171 13 7963 4179 17 1637 4111 2 764 4106 7 279 4100 Te TH	N   264	6 54.0N 167.1W    264
	N   264	# 264   7   56A-6   7   2495   4511   4512   N 248   8   56A-3   8   2343   4559   4562   D 241   1   1   1   1   1   1   1   1   1
6.6W 86 4224 4224 10 4223 4224 15 4278 4283 10 4317 4354 18 4229 4552 12 3776 4189 15 13205 4153 16 1881 4114 17 584 4102 18 298 4101 17 7H	11   51.3N   158.8W   1	12   50.9N   145.6W   1   1   1   1   1   1   1   1   1
1.3W 6 4224 4224 9 4160 4166 2 4260 4279 6 4199 4289 8 3875 4173 7 3349 4140 7 2586 4128 2 1343 4107 5 616 4102 5 245 4100 Te TH	14   49.3N 174.1E	# 264
1.28 5 4.224 4.224 4.269 4.293 5 4.162 4.195 4.4215 4.267 7 4.112 4.269 9 36.36 4.156 9 1757 4.106 1.779 4.106 1.779 4.106 1.779 4.106 1.779 4.106 1.779 4.106 1.779 4.106 1.779 4.106 1.779 4.106 1.779 4.106	17   45.8N   139.3E	18   45.6N   144.2W   145.6N   144.2W   145.6N   144.2W   145.6N   144.2W   145.6N   144.2W   145.6N   145.6N   145.6N   145.2W   145.6N   145.6N   145.2W   145.6N   145.6N
7. W   4224   4224   4224   4224   4224   4224   4234   4319   4327   4383   4345   4015   4266   4316   43	## 264   6   \$2.7 W   44.2N   \$19.27 W   7   \$24.5   6   \$25.0 \$   \$47.24   \$42.5   \$4	21 43.7W 128.7W

1	22 42.8N 167.5W	23 42.4N 172.1E	j
1	264 6 SEA-6 6 2208 4224 4224 248 6 SEA-6 6 2208 4224 4224	248   1   6   SEA - 6   7   2220   4223   4224   424	, ≥48
1	7 SEA-4 7 2233 4249 4250 2 34 1 13 SEA-1 14 2316 4465 4488	0 241 1 0 SEA-5 9 2500 4455 4464 2 34 2 1 1 16 SEA-1 19 2543 4376 4408	0 ≥41 ≥34
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1   1   1   1   1   1   1   1   1   1	E 2 17 38 19 27 10 17 13 7 4 10 14 7 8 6 7 5 53 444-1 245 2746 2874 4133 D 2 11 65 34 28 29 18 15 18 16 6 15 7 6 4 3 2 8 228-1 274 1433 1499 4100	E ≥ 17 32 14 15 14 19 12 17 B 5 5 6 4 9 5 4 64 414-1 233 2807 3012 4166 0 ≥ 11 74 41 39 31 23 21 14 7 10 7 6 6 10 6 3 14 198-1 312 1643 1722 4108	E ≥ 17 [17] 12]
1.7 IN CASE OF STATE AND S	h ≥ 7 46 32 36 23 13 17 9 3 1 3 2 2 1 1 150-1 188 674 685 4100 n ≥ 4 60 26 23 6 3 2 2 1 1 1 1 120-1 125 283 286 4100	\$\frac{2}{1}\$ \begin{array}{c c c c c c c c c c c c c c c c c c c	> 7 60 37
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6 17 8 0 10 10 10 10 10 10 10 10 10 10 10 10 1	n > 4 92 37 44 34 18 11 18 10 12 10 8 7 7 4 21 336-1 333 1846 1876 4122	k 2 / 388 60 36 32 26 14 14 9 4 4 1 2 3 1 1 4 132-1 299 1088 1099 4104 n ≥ 4 103 41 36 8 2 1 2 1 1 1 1 90-1 195 381 389 4101	> 7 42 17 n > 4 33 18
1	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T= TH HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T. TH HOURS INTERVAL BETWEEN EVENTS	
1	264 6 SEA-6 6 2208 4224 4224	" >64	
\$   1   1   1   1   1   1   1   1   1	N 248 6 SEA-6 6 2208 4224 4224 D 241 6 SEA-5 6 2203 4219 4219	N 248 6 SEA 6 6 2208 4224 4224 0 241 6 SEA 6 6 2208 4224 4224	N >48 D >41
\$ 22 2 3 1 1 2 1 2 1 1 2 1 1 2 1 1 1 1 1	2 34 6 SEA-5 6 2203 4219 4219 5 28 1 4 4 1 1 20 SEA-1 31 2753 4473 4520	> 34 > 28 > 28 1 1 1 1 13 SEA- 2 16 2281 4264 4287	>34 2 ± 5 ≥28
Company   Comp	E >22 35 33 27 1 3 2 8 3 1 6 8 1 2 3 61 1050-1 194 3210 3907 4405	E 222 2 3 1 1 2 2 2 1 2 31 1506 1 47 2766 4139 4262 E 217 16 5 2 3 3 3 3 3 6 5 3 4 2 3 1 7 50 942 2 116 2969 3711 4152	E 222 2 3 E 217 26 5
6 17 18 24 25 42 45 45 66 66 77 78 84 50 66 77 78 84 78 78 78 78 78 78 78 78 78 78 78 78 78	D > 11 102 59 30 4 6 14 8 4 5 3 10 1 5 5 1 7 138-2 264 1013 1067 4147 2 7 44 18 20 5 10 7 3 1 1 1 1 1 96-1 111 344 355 4111	D > 11 75 33 17 17 16 9 20 8 9 6 4 5 1 7 7 2 52 468-1 281 2477 3500 4116	D > 11 52 30 2
3	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T THE TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAY TE T TH	n > 4 104 58 2
# 246	HOURS INTERVAL BETWEEN SVENTS  31 35.6N 155.2W	Hours interval between events	J ., r
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\$\frac{1}{2}\frac{1}{1}\frac{1}{2}\frac{1}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac	> 28 1 1 14 SEA- 2 16 2722 4393 4417	28 1 1 7 SEA-5 9 2340 4326 4334	2 > 28
34 34.2N 193.9E 33 36.72 66.56 77 78 64 80 66. MAX TE T To TH HOURS INTERVAL SETTEMENT EVENTS  34 34.2N 193.1E 33 36.72 66.56 77 78 64 80 66. MAX TE T TO TH HOURS INTERVAL SETTEMENT EVENTS  35 36.72 67 78 64 80 66. MAX TE T TO TH HOURS INTERVAL SETTEMENT EVENTS  36 37 34.2N 193.8E 33 36.72 67 78 64 80 66. MAX TE T TO TH HOURS INTERVAL SETTEMENT EVENTS  36 37 37 37 37 37 37 37 37 37 37 37 37 37	£ ≥17 16 7 5 5 5 4 3 4 2 2 1 1 2 1 36 1740-1 94 2934 3928 4252 0 >11 52 25 23 16 17 12 11 10 7 8 1 5 8 2 6 50 750-1 253 2682 2645 4132	F > 17 13 3 1 1 1 1 1 1 2 1 1 1 37 2124 1 61 3000 4002 4260	Ē ≥ 17 <b>28</b> 7 i
34 34.2N 193.9E 33 36.72 66.56 77 78 64 80 66. MAX TE T To TH HOURS INTERVAL SETTEMENT EVENTS  34 34.2N 193.1E 33 36.72 66.56 77 78 64 80 66. MAX TE T TO TH HOURS INTERVAL SETTEMENT EVENTS  35 36.72 67 78 64 80 66. MAX TE T TO TH HOURS INTERVAL SETTEMENT EVENTS  36 37 34.2N 193.8E 33 36.72 67 78 64 80 66. MAX TE T TO TH HOURS INTERVAL SETTEMENT EVENTS  36 37 37 37 37 37 37 37 37 37 37 37 37 37	2 7 89 35 33 24 17 12 12 7 8 2 9 8 2 1 4 23 252-1 287 1586 1623 4124 8 2 4 62 56 33 14 10 11 7 9 6 1 2 2 5 1 12-1 218 781 781 781 781	\$\rightarrow\$ 7 \begin{array}{c c c c c c c c c c c c c c c c c c c	> 7 79 43
36 34.2N 153.1E  1 246	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TE TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T Ta TH	n 2 4 (76)40)
1 246	34 34.2N 155.1E	35 34.2N 163.8E	<del>، نوس</del> اری پ
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## 19 24 30 38 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH HOURS INTERVAL BETWEEN EVENTS  ## 244	0 211 57 23 27 16 13 12 12 5 8 13 5 5 2 5 8 52 5 616-1 263 2622 2730 4135 2 7 76 36 37 33 24 16 111 101 3 101 7 3 3 12 1 4 6 6 6 6 6 7 3 6 6 7 3 7 3 1 24 16 111 101 3 101 7 3 3 1 24 1 6 6 6 6 7 3 7 3 1 24 1 6 7 3 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	$0 \ge 11 \cdot 63 \cdot 27 \cdot 15 \cdot 16 \cdot 17 \cdot 14 \cdot 12 \cdot 9 \cdot 5 \cdot 6 \cdot 5 \cdot 3 \cdot 6 \cdot 7 \cdot 7 \cdot 55 \cdot 396 - 1 \cdot 267 \cdot 2536 \cdot 2561 \cdot 4140$	0 211 65 22 1
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N 240   1   6   52A - 6   6   2208   4224   4224   1   2   2   3   4   5   5   2   6   5   2   6   5   2   6   5   2   6   5   2   6   5   2   6   5   2   6   6   2   2   6	>64 6 SEA-6 6 2208 4224 4224	*>64 6 54-6 6 12308 4224 4224	
\$ 290   2   2   3   3   3   4   5   2   5   6   226   4224   4224   5   5   6   1   1   1   2   1   1   1   1   1   1	0 >41 6 SEA- 6 6 2208 4224 4224	N 248 6 52A-6 6 2208 4224 4224 D 241 6 52A-6 6 2208 4224 4224	N 248 D 241
\$\frac{227}{6} \frac{1}{1} \frac{1}{1} \frac{1}{1} \frac{1}{2} \frac{1}{2} \frac{1}{1} \frac{1}{2} \fr	5 226 2 2 1 11 SEA 7 15 2811 4657 4667	> 34 S > 28 B SEA 6 B 2453 4392 4395	\$ > 26
***   \$\frac{4}{6}\frac{19}{12}\frac{10}{12}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}\frac{1}{1}\frac{1}1	E > 17 47 53 46 3 2 11 17 2 6 13 4 5 2 54 1602 - 1 267 3142 3844 4475	E 22 7 4 1 1 1 1 20 \$\hat{8} - 2 34 2753 4460 4466 E 217 31 15 8 5 2 6 5 1 4 2 1 2 1 3 52 1006 1 138 3060 3055 4200	E 222 1 2 E 217 13 4
***   \$\frac{4}{6}\frac{19}{12}\frac{10}{12}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}{1}\frac{1}\frac{1}\frac{1}{1}\frac{1}1	2 7 365 51 16 2 5 4 4 1 1 1 2 1 1 1 114-1 167 419 434 4112	0 2 11 85 27 22 15 15 8 7 8 5 9 8 5 2 7 3 44 318-1 270 2165 2315 4199 2 7 82 37 26 19 10 13 10 4 3 5 2 6 3 1 10 186-1 231 982 1048 4104	D > 11 61 30 1 > 7 68 39 3
# 264   1   20.4N   134.0E   1	6 12 16 24 30 36 42 48 54 60 66 72 78 64 90 95+ MAX TE T Te TH	n ≥ 4 65 23 13 9 4 4 4 2 5 2 2 2 3 1002-2 134 396 413 4100 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TO TH	n > 4 96 35 2
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0 241	# 248	N 2*** [ 7   1998   4334   4339	>40
8 270   1   1   1   1   1   1   1   1   1	0 241 2 36 6 \$\frac{6}{2} \frac{6}{2} \frac{220}{2} \frac{4224}{224}	0 241 1 1 8 XA-5 9 2232 4329 4320 234 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D 241
2 21 1 40 1978-1 69 1998 4091 4257 0 211 80 32 31 1712 7 6 10 10 3 8 3 5 2 7 151 570-7 274 2444 3500 4125 0 211 80 32 31 1712 7 6 10 10 1 3 8 3 5 2 7 151 570-7 274 2444 3500 4125 0 211 80 32 31 1712 7 6 10 10 1 10 7 8 3 5 5 3 1 1 12 198-1 235 1086 1130 4110 0 2 1 18 10 11 10 1 10 1 1 10 1 1 10 1 1 10 1 1 10 1 1 10 1 1 10 1 1 10 1 1 10 1 1 1 10 1 1 1 10 1	6 SEA-6 6 2208 4224 4224 e > 22 1 1 12 SEA-2 13 2503 4282 4288	\$ <del></del>	228 € ≥ 22
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	9 12 10 24 30 36 42 46 54 60 66 72 78 64 90 96+ MAX TE T T+ TH HOURS INTERVAL SETWERS SYENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAN TE T TO THE HOURS INTERVAL BETWEEN EVENTS	9 15 1

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#### **SUMMER**

23 42.4N 172.1E * >64 7 2220 4223 4224	24 41.0N 134.9W # 264 6 5EA-6 6 2208 4224 4224
248 1 1 6 SEA- 6 7 2220 4220 4224	N ≥48 6 5€A-6 6 2208 4724 4224
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5 > 28 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	> 28 7 SEA-4 7 1878 4294 4299
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2 7 96 55 37 25 15 15 5 4 2 4 1 2 174-1 264 806 820 4102 2 4 99 40 13 9 3 3 2 1 1 54-1 171 318 324 4100	2 7 60 37 28 22 18 14 15 13 6 4 3 4 3 1 2 11 192-2 241 1184 1251 4104 2 4 85 25 21 17 9 7 4 2 2 1 1 3 96-3 177 484 516 4100
6 '2 '19 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TW TH HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH
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9 SEA- 5 9 2988 4702 4707 34 12 SEA- 2 12 2597 4361 4380	> 34 7 5EA-6 7 2435 4393 4397
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> 17 28 8 10 10 5 15 7 5 5 8 4 3 3 4 2 70 936-1 187 3155 3483 4154	E > 17 39 16 13 5 6 9 6 3 2 4 5 2 6 6 3 62 696-1 187 2836 3094 4225
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- 4 103 41 36 8 2 1 2 1 1 1 90-1 195 387 389 4101	n > 4 33 18 5 8 8 4 3 1 3 1 1 1 1 84 - 1 85 261 263 4101
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS INTERVAL BETWEEN EVENTS
29 35.9N 171.0W	30 35.7N 176.1E
# >64 6 2208 4224 4224	W >64 6 5EA-6 6 2208 4224 4224
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28 1 1 1 1 1 3 SEA- 2 16 2281 4264 4287 2 2 2 3 1 1 2 2 2 1 2 31 1506- 1 47 2766 4139 4262	28 13 22 14 2163 4260 4280 E 222 2 3 3 2 1 1 1 2 1 28 SEA-1 44 2898 4270 4391
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· <sup>7</sup> 82 47 37 25 27 12 14 6 7 5 5 2 6 3 2 13 174- 1 293 1348 1380 4103	2 7 84 55 43 28 28 18 13 7 4 5 4 2 2 4 12 210-1 309 1332 1333 4115
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HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH HOURS INTERVAL BETWEEN EVENTS
32 35.4 N 142.0 W	33 34.6N 145.9E
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E > 22 2 1 1 1 1 1 1 15 SEA 3 21 2534 4266 4306 E > 11 1 1 1 1 2 1 37 2124 - 1 61 3006 4067 4259	E > 22 2 1 1 1 1 2 1 2 1 33 SEA 1 43 2818 4157 4274
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> 7 77 48 28 15 14 15 8 13 7 13 7 7 1 2 3 25 504 1 283 1738 1798 4130 2 4 96 34 23 20 7 8 8 6 6 4 5 2 1 3 1 6 150 1 226 628 650 4102	2 7 79 4 3 37 18 20 12 8 12 7 6 8 2 4 1 2 12 204 1 2 71 1267 1262 4 101 n 2 4 76 40 31 13 9 5 6 6 2 1 1 1 1 1 1 1 102 1 193 547 550 4 100
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28 1 1 1 1 1 1 1 2 SEA- 2 14 2020 4237 4266 2 22 2 3 1 1 2 1 1 1 1 1 25 2190- 1 38 2763 4193 4319	p ≥ 28 1 8 \$£A-4 9 2236 4256 4264 E ≥ 22 5 1 1 1 1 2 2 21 \$£A-2 31 5036 4476 4544
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4 99 43 32 17 8 6 5 3 2 5 1 66-1 221 563 565 4100	n > 4 72 45 35 16 13 10 10 5 4 3 4 4 2 2 1 1 9 294- 1 235 1000 1003 4118
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 6C 66 72 78 84 90 96+ MAX TE T TO TH HOURS INTERVAL BETWEEN EVENTS
38 31.5N 127.7W	39 29.0N 177.3W
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#### WIND SPEED INTERVALS

1 64.0N 186.7W    264	2 59.4 N 172.0 W    264   1
## 264   1   1   1   7   SEA - 5   8   2052   477a   4778     248   3   3   2   1   2   1   1   2   2   3   35   SEA - 1   45   3167   4918   3013     241   8   3   2   1   2   1   1   1   2   2   1   2   2	5 58.8N 141.9W    248
7	8 52.0N 172.9E    Y 248
10   11   12   13   14   15   15   15   15   15   15   15	11 51.38 48 425 18 248 14 1 1 1 4 1 1 1 1 2 2 1 1 49 56.4 1 28 2407 4777 4825 18 2380 4320 4320 4320 4320 4320 4320 4320 432
13   50.3M   171.3W   17.3W   17.3W	14   49.3N   174.1E   17.5EA   11   29.5E   29.5EA   29
# 264	# 264   1   1   1   2   2   1   1   1   2   2
19	20

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# 264 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248 | ... 248

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4890 5441 5411 4828 4669 4591 4591 4557 4547	N   264   1   1   1   1   1   1   1   1   1	Size
4566 5525 5108 4870 4704 4627 4549 4549 4545 4545	N   264	12   50.9N   145.6W   145.6W
4928 5 5321 4946 4887 46 32 4565 4565 4565 4565 4565 TH	N   264	15   49.0N   128.4W   1   1   1   1   1   1   1   1   1
5288 5207 4737 4675 4579 4567 4567 4567 4567 4567	17 45.8N 139.3E  4 5.8N 139.3E  4 6 5 52A-6 6 72.006 4811 4812  5 4 7 5 7 5 7 5 7 5 7 7 7 8 8 4 7 7 49 348-1 324 3017 3233 3686 4633  6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	18   45.6N   144.2W   1976   148.2W   1976
5229 5002 4725 4572 4564 4546 4546 4546	8 AA A A A A A A A A A A A A A A A A A	21 43.7N 128.7W 248 1 1 3 1 1 1 1 1 1 1 1 19 \$EA-1 23 3066 5507 5540 241 7 1 1 3 3 1 5 3 4 1 1 4 1 1 36 1326-1 62 3136 5507 5540 241 7 2 1 1 1 1 3 3 1 5 3 4 1 1 2 4 1 5 5 750-1 114 3397 1478 5034 5 28 25 15 14 8 7 5 8 5 7 9 3 8 3 4 2 67 660-1 190 3382 4153 4809 6 2 22 40 27 22 28 9 16 11 16 15 6 9 10 5 3 3 6 2 486-1 29 3 329 4665 5 6 2 17 55 48 32 34 29 20 19 8 5 9 11 5 2 9 41 4486-1 327 2324 2479 4546 6 5 1 34 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

 $\lambda$ 

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### WIND SPEE

22 42.8N 167.5W  1 246 1	23	W 264 N 241 2 7 C 2 2 2 C 2 2 2 2 2 2 2 2 2 2 2 2 2
25 40.2N 131.2E  1 > 64  1	26 39.5N 153.8E    248	W 264 N 248 D 241 234 1 234 S 28 9 1 3 E 222 20 10 4 E 217 51 17 13 O 211 66 42 36 h 2 7 46 34 h 2 4 91 37 25 6 12 18
28 36.1N 123.8W  3.48 5 5 5 6 5 1640 4566 4566  3.48 5 5 6 5 6 2017 4565 4566  3.48 6 5 6 5 6 2017 4565 4566  3.48 6 5 6 5 6 2017 4565 4566  3.48 6 5 6 5 6 2017 4565 4566  3.48 6 5 6 5 6 2017 4565 4566  3.48 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	29 33,9N 171,0W  248	W 264 1 248 2 24 10 2 1 5 28 14 6 13 6 22 17 75 42 44 0 21 1 123 104 66 2 7 154 71 36 4 26 27 9 6 12 18 8 2 18 18 18 18 18 18 18
31. 35.6N 155.2W  32.6N 248	32 35.4 N 142.0 W  248	N 248
34 34.2N 155.1E  34 34.2N 155.1E  34 5 5 5 6 6 6 2208 4996 4998  34 1 1 1 1 1 1 1 7 5 5 5 6 6 6 2208 4996 4998  34 1 1 1 1 1 1 1 7 5 7 556.6 6 2208 4996 4998  34 1 1 1 1 1 1 1 7 5 7 556.6 6 2208 4996 5034  34 1 1 1 1 1 1 1 7 5 7 556.6 6 8 2308 5028 5034  34 1 1 1 1 1 1 1 1 7 5 7 556.6 6 8 2308 5028 5034  34 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	35 34.2N 183.8E    248	W > 64 1
37 32.9N 119.4W  340 5 SEA-5 5 1840 4564 4564  5 SEA-5 5 1840 4564  5	38 31.5N 127.7W    248	N 249 D 241 2 34 3 S 220 5 3 1 E 222 23 13 11 E 217 444 144 16 D 211 78 55 44 L 2 4 104 47 20 6 12 18
# 246	# 264   5   \$\frac{5}{2} \text{   \$\frac{5}{	N 246 N 246 D 241 S 278 S 278 E 227 11 E 227 146 177 7 D 211 684 402 26 N 2 4 104 41 28 N 2 4 104 41 28 N 2 18 18 18

# 564   1   1   1   2   1   1   1   1   2   3   1   27   56A-2   41   3460   5458   5528     2   4   8   2   4   4   1   5   1   1   3   3   3   2   1   2   59   1440-1   97   3348   4638   4841     3   4   4   5   2   4   1   5   1   1   3   3   3   2   1   2   59   1440-1   97   3348   4638   4841     3   4   5   2   4   4   1   5   1   1   3   3   2   1   2   59   1440-1   97   3348   4638   4841     3   4   5   6   6   7   8   7   4   88   6   7   4   7   4   888-1   211   3640   4170   4736     5   28   47   43   28   19   16   77   10   11   13   2   5   10   9   6   438-1   327   3231   3509   647     5   28   66   6   6   47   72   30   21   11   17   12   11   12   4   7   4   31   246-1   417   4270   2602   4591     5   21   11   69   59   33   34   77   17   15   7   4   10   6   3   3   2   10   162-1   407   1674   1748   4550     5   21   11   13   14   5   4   4   2   2	248
** 264   39.5N   153.8E   153.	## 264
** 35.9N 171.0W  ** 248	30   35,7N   176,1E
32 35.4N 142.0W  348	33 34.6N 145.9E    248
35   34.2N   163.8E   N   248   N	36 33.7N 123.9E  36 33.7N 123.9E  5 \$\frac{5}{2}\text{48}\$  248
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# 264	## 264

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N 248 5 SEA 5 5 1840 4565 4566 N 241 1 9 SEA 5 10 2313 4864 4873	N 248 5 SEA 5 5 1840 4566 4566 D 241 5 SEA 5 5 1840 4566 4566
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5 28 13 4 4 2 3 1 1 2 3 1 1 1 1 1 51 1314-1 88 3165 4451 4765	S > 28 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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E > 17 102 24 20 12 16 12 16 6 8 6 12 9 5 2 5 45 942-1 300 2470 2715 4617	E > 17 22 13 6 4 9 4 8 8 5 2 6 4 3 4 80 852 1 182 3365 3974 4646 D > 11 81 41 35 24 27 21 27 21 11 16 9 7 10 6 2 34 252 1 372 2423 2606 4566
0 > 11 101 34 24 17 29 15 14 4 9 6 3 5 2 2 10 300-1 275 1200 1230 4558 > 7 70 38 18 12 9 10 4 5 2 1 1 1 1 156-1 171 494 497 4552	D > 11 81 41 35 24 27 21 27 21 11 16 9 7 10 6 2 34 252-1 372 2423 2606 4566 2 2 7 44 66 66 42 16 19 15 10 7 4 3 5 1 2 1 102-1 398 1272 1338 4550
2 7 70 38 18 12 9 10 4 5 2 1 1 1 1 156-1 171 494 497 4552 2 2 4 60 16 9 10 1 3 1 1 1 1 1 132-1 103 232 232 4545	2 4 159 61 20 15 5 5 2 1 1 1 1 60-1 270 497 519 4548
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T Tx TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH
HOURS INTERVAL BETWEEN EVENTS	hours interval between events
46 26.1N 170.8E	47 25.0N 119.4W
W >64 5 SEA - 5 5 1840 4566 4566	W > 64 5 SEA - 5 5 1840 4566 4566
N 248 5 SEA-5 5 1840 4566 4566 N 241 5 SEA-5 5 1840 4566 4566	N 248 5 SEA-5 5 1840 4566 4566 D 241 5 SEA-5 5 1840 4566 4566
0 241 5 SEA- 5 5 1840 4566 4566 234 5 SEA- 5 5 1840 4563 4566	> 34 1 5 SEA - 5 6 1841 4565 4566
> 28 1 1 1 12 SEA- 4 14 2899 5256 5287	28 1 5 SEA- 5 6 1841 4565 4566
22 14 3 3 1 2 1 1 2 3 1 41 1248-1 72 3489 4845 5041	E 222 1 13 SEA- 3 14 2655 5133 5154
E > 17 32 11 13 3 6 5 5 8 3 7 3 3 5 5 2 68 624-1 179 3312 4018 4727  D > 11 76 40 27 24 16 24 18 15 15 8 2 12 4 5 4 40 294-1 330 2297 2448 4564	E ≥ 17 25 9 3 7 4 1 3 2 1 1 4 2 4 1 1 69 972 1 137 3635 4436 4722 D ≥ 11 157 36 49 25 24 15 17 12 7 11 9 5 6 4 9 42 318 1 428 2496 2617 4556
D > 11 76 40 27 24 16 24 18 15 15 8 2 12 4 5 4 40 294 - 1 330 2297 2448 4564 > 7 111 46 45 33 23 8 21 8 3 6 3 2 1 3 8 138 - 1 327 1199 1216 4557	D ≥ 11 157 36 49 25 24 15 17 12 7 11 9 5 6 4 9 42 318-1 428 2496 2617 4556 ≥ 7 125 51 23 18 21 12 9 7 5 5 2 4 1 6 7 126-2 296 1062 1085 4545
n > 4 112 54 20 17 6 3 2 2 1 54-1 217 435 440 4545	2 4 86 2 24 7 3 5 4 3 1 2 1 1 84-1 164 392 398 4545
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH
HOURS INTERVAL BETWEEN EVENTS	Hours interval between events
49 22.6N 128.0E	50 21.7N 162.7W
* >64 5 SEA- 5 5 1840 4566 4566	₩ ≥64 5 SEA-5 5 1840 4566 4566
N 248 7 SEA-5 7 2127 4714 4716 N 241 2 9 SEA-5 11 2570 5154 5163	N 248 5 SEA- 5 5 1840 4566 4566 D 241 5 SEA- 5 5 1840 4566 4566
0 241 2 9 SEA-5 11 2570 5154 5163 234 7 20 SEA-5 27 3320 5846 5900	234   5 SEA- 5 6 1991 4585 4586
> 28 20 3 4 4 2 1 1 1 2 1 1 2 52 SEA-1 97 3479 4925 5200	S ≥ 28 2 1 1 14 SEA - 4 17 3140 5332 5353
222 57 15 17 4 7 11 10 4 7 5 8 6 6 6 6 3 66 948-1 232 3207 3691 4706	E > 22 8 4 8 3 1 1 1 1 1 2 2 46 2046-1 78 3381 4599 4783
E > 17 104 23 23 13 18 15 14 12 9 6 7 7 3 4 1 44 666-1 303 2314 2550 4580 D > 11 79 26 29 16 15 12 15 4 8 1 1 4 5 3 2 11 312-1 231 1134 1184 4550	E ≥ 17 61 22 12 9 7 5 9 4 6 8 2 6 6 5 4 62 876-1 228 3341 3883 4719 D ≥ 11 135 35 26 25 15 21 11 16 9 8 9 7 6 2 3 27 354-1 355 1921 2062 4573
0 > 11 79 26 29 16 15 12 15 4 8 1 1 4 5 3 2 11 312-1 231 1134 1184 4550 > 7 68 31 15 10 11 9 4 2 2 1 3 2 2 2 120-1 162 517 517 4545	0 2 11 135 35 26 25 15 21 11 16 9 8 9 7 6 2 3 27 354-1 355 1921 2062 4573 k > 7 126 48 27 27 12 8 16 3 3 1 3 2 3 1 1 2 144-1 283 864 917 4551
n > 4 59 17 9 4 1 2 1 1 54-1 93 162 162 4545	n ≥ 4 106 34 16 8 3 2 2 2 66-2 173 319 331 4545
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T= TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH
hours interval between events	Hours interval between events
52 19.2N 127.8W	53 18.5N 120.7E
264 5 SEA- 5 5 1840 4566 4566 2488 5 SEA- 5 5 1840 4566 4566	₩ ≥ 64     8 SEA - 5     8 1995 4721 4724       N ≥ 48     1 2 1     1 18 SEA - 5     23 3131 5302 5342
N 241 6 SEA-6 6 2208 4932 4933	N 241 7 3 1 1 1 1 1 30 SEA- 2 45 3229 5017 5130
2 34 1 7 SEA- 6 B 2511 5092 5100	> 34 30 12 5 5 3 5 1 3 3 2 3 6 2 3 46 SEA-1 129 3501 4725 5096
2 28 3 4 1 2 17 SEA-1 27 3320 5401 5456	> 28 71 21 21 10 10 8 4 4 4 7 5 7 2 3 6 63 984-1 246 3231 3801 4722
E > 22 20 10 3 5 1 3 1 5 2 1 1 1 1 2 51 1512-1 106 3613 4658 4964 E > 17 09 32 20 17 15 10 15 8 6 3 7 7 9 4 5 72 474-1 339 3273 3520 4656	E ≥ 22 118 48 28 22 18 10 10 11 6 9 7 7 6 5 4 42 558-1 351 2490 2700 4601 E ≥ 17 153 51 28 24 6 12 15 9 7 5 7 1 6 7 2 21 324-1 354 1674 1729 4561
E ≥ 17 100 32 20 17 15 10 15 8 6 3 7 7 9 4 5 72 474-1 339 3273 3520 4656 0 ≥ 11 203 43 34 21 12 10 7 11 5 4 11 2 3 2 6 156-1 374 1155 1179 4551	D > 11 125 31 25 9 8 15 2 3 3 1 4 1 2 3 5 114-2 237 715 717 4548
> 7 95 22 15 5 4 1 2 1 2 1 1 84-1 148 284 286 4547	> 7 73 20 11 9 5 3 2 1 1 2 1 1 90-1 129 303 303 4545
0 ≥ 4 33 9 5 1 24-1 48 70 70 4545	n ≥ 4 41 13 5 1 1 1 36-1 61 92 92 4545
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T* TH HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH HOURS INTERVAL BETWEEN BYENTS
55 17.6N 138.5E	56 17.6N 111.5W  ₩ ≥64 5 5 5EA-5 5 1640 4566 4566
248 2 8 SEA-5 10 2227 4806 4811	3 SEA- 5 5 1840 4566 4566
D 241 1 1 1 13 SEA- 3 15 2460 4930 4956	0 241 6 SEA- 5 6 1933 4659 4660
> 34 7 1 1 1 1 1 1 1 21 SEA-1 34 2738 4844 4925	≥ 34 6 SEA-5 6 1933 4659 4660
> 28 13 2 3 1 2 1 1 2 1 1 3 42 1332 1 71 3141 4547 4801 = > 22 30 10 14 6 7 1 4 7 3 6 4 2 5 3 2 69 1260 1 173 3425 4015 4702	28
E > 17 85 42 25 10 8 17 12 10 7 10 10 5 5 8 5 54 570-1 313 2777 3000 4575	E 217 20 11 10 6 2 8 3 1 1 1 2 1 3 1 3 55 1674-1 128 3714 4644 4921
D > 11 114 54 25 19 20 13 11 10 4 8 4 3 6 6 15 372-1 312 1458 1534 4554	D > 11 [164] 57 41 30 18 15 12 16 15 12 10 11 8 9 1 49 372-1 468 2964 3047 4610
> 7 92 35 33 17 10 8 10 2 1 3 1 1 2 126-1 215 618 622 4548	> 7 214 87 57 41 18 14 17 9 7 6 1 1 3 2 5 120-1 482 1394 14 16 4569
n ≥ 4 69 13 11 6 3 1	n ≥ 4 155 66 20 6 12 5 1 3 1 2 1 1 2 120-1 274 572 578 4545 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH
HOURS INTERVAL BETWEEN EVENTS	HOURS INTERVAL BETWEEN EVENTS
58 14.5N 127.7E	59 14.0N 160.6W
# >64 4 1472 4562 4562	* >64 5 SEA 5 5 1840 4566 4566
N >48 1 5 SEA- 4 6 1604 4560 4562	N 248 6 SEA- 5 6 2014 4565 4566
0 241 2 6 SEA-4 8 1760 4555 4562 2 34 4 1 1 1 1 1 1 1 1 3 SEA- 3 19 2364 5076 5111	0 241 6 SEA-5 6 2013 4563 4566 234 4563 4566
\$ 28 6 2 2 1 1 1 1 29 \$EA-1 42 3038 5226 5350	5 \20 3 1 1 1 1 1 1 1 2 CA - A 16 1701 5 (67 5 167
F 222 21 10 8 3 3 2 1 3 3 2 2 3 4 3 1 57 954-1 126 3089 4367 4815	E 22 22 3 2 2 1 1 2 1 1 1 1 42 SEA- 1 79 3816 5181 5342
2 17 7A 19 16 10 10 5 12 7 4 3 9 6 6 1 2 54 822-1 238 2764 3500 4631	ε > 17 [90] 25 [17] 7 [13 [9] 11] 2 [6 [6 [12] 3 [6 [5 ] 6 [55] 682-1 ] 273 [3208] 3885 [4798]
D > 11 726 58 32 14 14 22 72 8 6 7 6 4 2 4 8 29 420-1 352 1914 2025 4568 > 7 722 36 39 15 19 10 4 6 8 4 3 1 1 1 1 5 138-1 274 879 912 4541	0 2 11 160 43 42 17 20 13 10 10 5 10 9 2 4 3 2 21 204-1 371 1608 1776 4568 2 7 129 26 10 10 9 7 2 2 2 3 3 2 1 90-1 203 455 496 4546
2 4 94 36 14 5 6 4 36 4 36 4 5 6 4 36 4 5 9 282 288 4541	k ≥ 7 129 26 10 10 9 7 2 2 2 3 2 1 90-1 203 455 496 4546 n ≥ 4 50 14 6 1 1 36-1 71 102 110 4545
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 + MAX TE T To TH
HOURS INTERVAL BETWEEN EVENTS	Hours interval detween events
61 12.0N 156.7E	62 4.1N 106.7E
264 5 SEA-5 5 1840 4566 4506 248 5 SEA-5 5 1840 4566 4566	\$ \$4-5 5 1840 4566 4566 \$ 248 5 \$2.4 5 5 1840 4566 4566
N 240 D 241 5 SEA- 5 5 1840 4566 4566	N 240 5 5 1840 4566 4566 0 5 1840 4566 4566
> 34 1 6 SEA-5 7 2071 4797 4801	>34
2 > 20	20 7 SEA-4 7 1885 4611 4617
E > 27 12 6 3 7 1 1 1 1 1 30 SEA 2 55 3486 5053 5156 E > 17 57 11 12 12 8 7 9 3 5 2 3 2 3 2 1 60 1332 1 198 328 4337 4665	E 222 2 9 9 \$\frac{9}{6}\$ \$\frac{465}{465}\$ \$\frac{11}{6}\$ \$\frac{11}{6}\$ \$\frac{16}{6}\$ \$\frac{1}{6}\$ \$\frac{1}{6
D > 11 136 43 45 17 16 10 9 10 10 9 3 5 5 6 32 306-1 356 1941 2164 4555	E 217 4 3 1 2 1 1 9 5£A- 6 21 2067 4594 4651 D 211 7 2 5 1 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2
2 7 114 21 24 12 4 6 2 6 5 2 2 1 1 1 1 9 222-1 210 737 756 4547	2 7 35 27 26 7 7 4 8 3 1 4 3 1 2 2 6 36 SEA- 1 172 2997 4072 4640
n > 4 72 10 14 6 2 3 1 1 2 1 78-1 112 232 232 4545	n > 4 100 33 27 16 20 10 6 4 5 3 4 3 3 3 2 31 846 1 270 1983 2408 4545
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TH

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#### **FALL**

44 27.9N 150.7E	45 27.8N 145.6W
* >64 5 SEA- 5 5 1840 4566 4566 >48 5 SEA- 5 5 1840 4566 4566	# 264 5 SEA- 5 5 1840 4566 4566 248 5 SEA- 5 5 1840 4566 4566
5 SEA- 5 5 1840 4566 4566 > 34 1 7 SEA- 6 8 2268 4884 4889	0 241 5 SEA-5 5 1840 4566 4566 234 8 SEA-4 8 2089 4720 4730
> 28   1   1   1   1   1   1   1   1   1	28 1 1 1 1 17 \$\xi 4848\$ 222 23 5 6 2 3 4 2 2 1 2 53 1464-1 103 3476 4557 4840
5 17 22 13 6 4 9 4 4 6 6 5 2 6 4 3 4 80 852-1 182 3365 3974 4646	E > 17 52 19 7 6 5 9 8 6 6 3 5 5 4 6 3 67 834-1 211 3273 3766 4646 D > 11 104 31 28 21 16 16 9 11 8 8 11 9 5 3 3 37 276-1 320 2037 2223 4554
2 141 66 66 42 16 19 15 10 7 4 3 5 1 2 1 102-1 398 1272 1338 4550	2 7 110 45 40 29 15 9 14 8 5 5 2 1 3 2 4 3 102-2 295 1032 1062 4545
> 4 [156] 20 15 5 5 2 1 1 1	n > 4   91   42   18   11   3   2   2   1   1   1   66-1   172   343   346   4545   6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T TO TH HOURS INTERVAL BETWEEN EVENTS
47 25.0N 119.4W	48 23.5N 151.8W
5 SEA-5 5 1840 4566 4566 348 5 SEA-5 5 1840 4566 4566	W ≥ 64     5     SEA - 5     5     1840     4566     4566       N ≥ 48     5     SEA - 5     5     1840     4566     4566
5 SEA - 5 5 1840 4566 4566 234 1 5 SEA - 5 6 1841 4565 4566	0 241 5 SEA 5 5 1840 4566 4566 234 5 SEA 5 5 1840 4566 4566
> 28 1 5 SEA - 5 6 1841 4565 4566 > 22 1 13 SEA - 3 14 2655 5133 5154	5 28 2 1 1 11 SEA 2 15 2425 4974 4996 5 2 7 4 6 2 5 1 3 1 2 39 2040 1 70 3597 4795 4959
2 3 1 2 5 9 3 7 4 1 3 2 1 1 4 2 4 1 1 69 972-1 137 3635 4436 4722 2 3 1 5 1 5 1 3 6 4 9 2 5 2 4 1 5 1 7 1 2 7 1 1 9 5 6 4 9 4 2 3 1 8 - 1 4 2 8 2 4 9 6 2 6 1 7 4 5 5 6	E > 17 52 27 16 8 6 9 3 2 7 3 4 2 1 3 6 65 852-1 214 3174 3880 4656 D > 11 129 44 27 13 10 13 16 13 7 8 7 4 4 5 3 32 390-1 335 1927 2064 4567
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6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TM HOURS INTERVAL BETWEEN EVENTS
50 21.7N 162.7W	51 20.5N 177.1W
W >64     5     SEA-5     5     1840     4566     4566       V >48     5     SEA-5     5     1840     4566     4566	N 248 5 SEA- 5 5 1840 4566 4566
0 341 5 SEA- 5 5 1840 4566 4566 2 34 6 SEA- 5 6 1991 4585 4586	0 241 5 SEA-5 5 1840 4566 4566 2 34 7 SEA-5 7 2369 5095 5099
28 2 1 1 1 1 1 1 1 1 1 1 1 2 2 46 2046 1 78 3381 4599 4783	S > 28 2 12 4 4 4 3 1 2 1 1 40 SEA-1 72 3907 5097 5309
E > 1.7 61 22 12 9 7 5 9 4 6 8 2 6 6 5 4 62 876-1 228 3341 3883 4719 0 > 11 136 35 26 25 15 21 11 16 9 8 9 7 6 2 3 27 354-1 355 1921 2062 4573	E > 17 49 17 10 10 0 0 3 6 3 1 2 4 2 4 1 67 948-1 187 3212 3898 4725 D > 11 110 35 26 25 17 17 15 9 7 3 10 6 9 3 6 26 366-1 324 1921 2109 4615
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6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH HOURS INTERVAL BETWEEN EVENTS
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F 222 118 48 28 22 18 10 10 11 6 9 7 7 6 5 4 42 558-1 351 2490 2700 4601	F > 22 33 9 4 7 3 3 4 2 2 2 5 1 2 52 1608-1 129 3711 4768 5159
E > 17 153 51 28 24 6 12 15 9 7 5 7 1 6 7 2 21 324-1 354 1674 1729 4561 0 > 11 125 31 25 9 8 15 2 3 3 1 4 1 2 3 5 114-2 237 715 717 4548	E > 17 84 25 26 13 13 5 4 4 13 2 6 5 4 3 7 52 1032-1 266 3003 3593 4801 0 > 11 004 37 29 13 20 16 6 4 6 6 5 5 5 3 5 2 20 240-1 281 1447 1575 4568
> 7 73 20 11 9 5 3 2 1 1 2 1 1 9 0 1 129 303 303 4545 > 4 41 13 5 1 1 1 3 36 1 61 92 92 4545	2 7 72 26 27 13 13 11 4 3 2 1 2 1 1 102-1 176 528 546 4550 2 4 59 19 6 2 1 30-1 87 128 133 4545
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T* TH HOURS INTERVAL BETWEEN EVENTS
56 17.6N 111.5W	57 14.9N 147.9E
N ≥48 5 SEA-5 5 1840 4566 4566 0 ≥41 6 SEA-5 6 1933 4659 4660	N 248 5 SEA-5 5 1840 4566 4566 0 241 5 SEA-5 5 1840 4566 4566
> 34 660 SEA - 5 6 1933 4659 4660 > 28 7 SEA - 5 7 2267 4993 4997	234 2 10 SEA-5 12 2552 4979 4997 5 28 6 2 1 1 1 1 1 2 29 SEA-2 44 2661 4636 4715
E >22 2 1 2 1 1 1 1 1 19 SEA- 2 28 3044 5018 5071 E >17 20 11 10 6 2 8 3 1 1 1 2 1 3 1 3 55 1674- 1 128 3714 4644 4921	E 222 36 8 4 3 9 6 7 4 3 6 4 2 3 2 2 53 1170-1 152 3308 4572 4893 E 217 121 24 33 16 21 13 13 4 11 3 8 2 9 5 4 53 876-1 340 3112 3588 4624
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2 4 155 66 20 6 12 5 1 3 1 2 1 2 120-1 274 572 578 4545 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T+ TH	n > 4 66 16 10 6 1 1 1 36-1 102 165 167 4545 6 6 6 72 78 84 90 96+ MAX TE T TO TH
Hours interval between events	HOURS INTERVAL BETWEEN EVENTS
59 14.0N 160.6W # >64 5 SEA-5 5 1940 4566 4566   >48 6 SEA-5 6 2014 4565 4566	80 12.2N 112.8E W 264 5 SEA-5 5 1940 4566 4566 1 248 5 SEA-5 5 1940 4566 4566
0 241 6 SEA- 5 6 2013 4563 4566	D 241 2 1 1 7 SEA-4 12 2239 4965 4975
>28 3 1 12 SEA-4 16 2791 5152 5167	8 2 28 5 2 3 1 1 3 1 1 1 25 SEA- 2 43 3045 5328 5477
E > 22 22 3 2 2 1 1 2 1 1 2 1 1 1 42 SEA-1 79 3816 5181 5342 E > 17 90 25 17 7 13 9 11 2 6 6 12 3 6 5 6 55 882-1 273 3208 3885 4798	E > 17 74 24 23 18 10 9 3 6 10 8 2 2 4 5 2 39 1356-1 239 2486 3203 4560
0 211 86 43 42 17 20 13 10 10 5 10 9 2 4 3 2 21 204-1 371 1606 1776 4568 2 7 179 26 10 10 9 7 2 2 2 3 2 1 90-1 203 455 496 4546	0 2 11 129 46 26 5 10 10 7 7 6 7 6 2 2 4 3 24 396-1 294 1622 1868 4545 2 7 111 33 17 12 12 9 3 2 5 1 2 3 2 1 12 228-1 225 889 906 4545
A 50 14 6 1 1 36 -1 71 102 110 4545 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T T# TH	n > 4 76 19 16 10 5 7 1 2 1 2 2 1 1 132-1 143 396 403 4545
HOURS INTERVAL DETWEEN EVENTS 62 4.1N 106.7E	HOURS INTERVAL BETWEEN EVENTS 63 2.1N 123.6B
* 264 5 SEA- 5 5 1840 4566 4566	₩ ≥64 5 SEA 5 5 1840 4366 4366 4366 4366 4366 4366 4366 43
5 SEA- 5 5 1840 4566 4566 > 34 6 SEA- 5 6 2175 4901 4603	D 241 5 SEA-5 5 1840 4566 4566 234 5 SEA-5 5 1840 4566 4566 4566
5 228 7 354-4 7 1095 4611 4617 6 27 27 4 3 1 2 1 1 9 56-4 11 1915 4629 4651	3 > 28   6   SEA - 5   6   1989   4715   4716   6   SEA - 5   6   1989   4715   4716
	6 SA-5 6 1989 4715 4716
> 7 35/27/26 7 7 4 6 3 1 4 3 1 2 2 6 35 584 1 172 2997 4072 4840	2 7 3 1 10 2 1 2 2 3 2 16 \$\frac{1}{2}\$ \$\fr
6 12 18 24 30 36 42 48 54 60 66 72 78 64 90 96+ MAX TE T To TH  HOURS INTERVAL BETWEEN EVENTS	6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96+ MAX TE T To TH HOURS INTERVAL BETWEEN EVENTS
The state of the s	^
	235

## ANNUAL

1 84.0N 188.7W  248	2 59.4N 172.0W  248 3	W 264 3 N 241 3 D 241 3 D 234 19 P 228 38 F 228 394 E 217 163 D 2 11 280 D 2 11 385 In 2 4 25
\$\$ 264   1	5   56,8N   141,9W   1   1   1   1   1   1   1   1   1	W 264 1 N 248 1 N 241 29 S 24 29 S 260 P 2 22 53 E 217 227 E 217 227 D 2 7 296 D 2 4 262 25
7 53.4 N 164.7E  N 248 2 1	8 52.0N 172.9E   248   2   1   2   1   3   68.00 - 1   8   1136   179.0   172.19   248   2   1   2   1   3   6   5   2   18   19   14   6   3   1   90.75 - 1   85   5696   16983   172.19   244   13   11   6   5   24   18   21   14   40   48   10   11   2   4   175.50 - 1   227   1654   16593   172.19   248   444   41   25   26   67   55   39   31   72   49   14   6   2   4   166.00 - 1   475   12333   15666   172.19   258   100   50   68   57   139   73   94   44   104   41   17   7   1   1   97.25 - 1   775   12333   15666   172.19   252   100   103   104   107   234   126   40   59   91   1   43.00 - 1   1055   10742   1158   172.19   2   2   2   2   2   2   2   2   2   2	* 264   300   25   4   300   25   4   300   25   4   300   25   4   300   25   4   300   25   300   25   300
10   51.7N   135.6W   12719	11	W 264 2 N 241 14 2 34 44 2 34 44 2 27 105 P 222 225 E 217 300 D 211 386 L 27 274 L 2 4
13   50.3N   171.3W   7.00	14   49.3N   174, 1E   248   6 3 2 5 12 7 6 11 20 26 17 7 4 2 1   206.50 - 1   129   8577   16898   17219   244   15 12 9 7   27   25 28   15 47   47   17   8 3 3 3   176, 75 - 1   263   11113   16493   17219   244   15 12 9   27   27   25 28   15 47   47   17   8 3 3 3   176, 75 - 1   263   11113   16493   17219   246   253   247	W 264 1 N 241 6 N 241 6 S 34 76 S 28 44 P 28 44 P 27 105 E 217 174 D 211 124 M 2 4 302
16 47.1N 161.2E  1 2 48.25 -1 4 454 17196 17217  2 48.25 -1 4 454 17196 17217  3 2 48.25 -1 4 454 17196 17217  3 2 48.25 -1 4 454 17196 17217  3 2 48.25 -1 5 4 454 17196 17217  3 3 4 12 14 14 6 25 25 26 22 53 26 18 4 9 13 22 12 7 3 2 175.50 -1 97 6449 17004 17217  3 2 4 12 14 14 6 25 25 25 26 22 53 26 18 6 2 1 18 2 1 186.25 -1 271 9958 18549 17217  3 2 8 12 15 19 67 196 10 48 12 7 9 46 12 5 2 3 13.25 -1 90 112392 13856 17217  5 2 8 12 15 19 10 14 18 2 32 19 18 0 4 18 6 2 5 7 4 1 33.00 -1 1700 10667 115525 17217  5 2 7 17 12 2 22 19 10 14 12 14 10 76 38 47 10 1 1 33.00 -1 1376 1805 18274 17217  5 2 7 17 180 100 15 5 6 9 8 6 1 3 1 1855 1825 1825 17217  5 2 8 120 120 130 14 18 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	## 264	W 264
## 264   1   1   1   1   1   1   1   1   1	## 264   1   2   4   2   3   6   8   8   9   3   2   1   245.00 - 1   72.12   172.12	W 264 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

<sup>7</sup> 236

# WIND SPEED INTERVALS

N   264	3 58.5N 151.6W  246 3 0 0.00-0 0 17215 17216  ≥ 46 3 0 0.00-0 0 17215 17216  ≥ 41 3 2 1 2 1 2 1 15 14 9 10 2 64.00-1 62 2469 17040 17219  ≥ 34 19 14 5 2 25 19 13 9 474 122 8 1 3 178.50-1 227 10055 555 17219  ≥ 28 39 15 21 24 74 52 31 31 96 59 13 4 2 4 138.50-1 227 10055 555 17219  ≥ 22 94 68 70 44 10 94 90 94 100 34 10 32 7 10 3 1 95.50-1 622 1205 15406 17219  ≥ 21 120 121 121 12 91 220 109 73 38 78 20 7 6 50.75-1 1046 1057 10814 17219  ≥ 17 152 122 112 91 220 109 73 38 78 20 7 6 50.75-1 1046 1057 10814 17219  ≥ 18 122 112 91 220 109 73 38 78 20 7 6 50.75-1 1046 1057 10814 17219  ≥ 18 122 112 112 112 112 112 112 112 112
N   264	8
	9 51.7N 158.8E    248
N   264   1   1   3   2   1   2   9   9   5   10   2   3   178.25 - 1   46   539   17077   17219     2   4   15   5   4   5   3   15   12   6   33   47   18   12   2   3   145.75 - 1   192   9470   16728   17219     2   4   5   2   2   2   17   7   2   44   34   29   98   59   10   2   3   145.75 - 1   192   9470   16728   17219     2   4   5   2   2   2   17   7   2   44   34   29   98   59   11   0   2   5   166.75 - 1   47   13073   158.99   17219     2   4   5   2   2   2   17   17   2   2   3   3   7   18   2   3   3   3   3   3   3   3   3   3	12 50.9N 145.6W    248   2   5   1   3   3   2   5   8   9   9   2   76.00-1   49   3551   1706   17219     248   2   5   1   3   3   2   5   8   9   9   2   76.00-1   49   3551   1706   17219     241   14   2   8   5   17   20   10   16   34   36   15   8   1   2   2   228.50-1   190   9544   16752   17219     244   24   27   27   21   24   23   29   35   75   54   4   1   4   151.75-1   458   11523   1511   17219     25   28   109   94   67   63   14   84   54   40   93   54   7   4   4   81.50-1   810   12181   14029   17219     2   22   229   100   12   73   210   116   51   53   83   30   7   3   56.50-1   1009   10497   11070   17219     2   21   2300   20   119   110   112   15   33   33   19   9   70.00-1   110   1210   1479   7708   17219     2   21   2300   20   30   30   30   30   30
# 264   1   1   1   1   1   1   20   20   17   19   17219	15 49.0N 128.4W  1 1 1 1 2 2 1 1 4 4 5 2 2 3 120.00 0 0 17718 177219  248 1 1 1 1 2 2 2 1 1 4 4 5 2 2 3 120.00 0 0 2 177218 177219  241 6 6 1 1 18 10 7 5 15 20 10 10 2 1772.5 1 110 5177 16869 17219  234 26 12 7 16 40 10 519 7 40 35 10 11 1 1 1 2 11.50 - 1 25 1865 1 1666 1 17219  234 26 12 7 16 40 10 519 1 17 40 35 10 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
17   45.6N   139.3E   17210   17217   1718   17217   17210   17217   17210   17217   17210   17217   17210   17217	18   45.8N   144.2W   15.8N   145.2N   15.8N   15.8N
## 264   1   2   4   2   3   6   8   6   9   3   2   1   249.00-1   57   6096   17218     248   6   2   1   2   4   2   3   6   8   6   9   3   2   1   249.00-1   57   6096   17218     241   17   1   5   3   18   231   15   30   40   9   9   1   4   155.50-1   190   9082   16759   17218     241   17   1   5   3   18   231   15   30   40   9   9   1   4   155.50-1   190   9082   16759   17218     242   243   245   245   245   245   245   245   245   245   245   245   245     243   245   245   245   245   245   245   245   245   245   245     244   245   245   245   245   245   245   245   245   245     247   247   248   248   248   245   245   245   245   245     248   245   245   245   245   245   245   245     248   245   245   245   245   245   245   245     248   245   245   245   245   245   245     249   245   245   245   245   245     249   245   245   245   245   245     240   245   245   245   245   245     240   245   245   245   245   245     240   245   245   245   245   245     241   245   245   245   245   245     242   245   245   245   245   245     243   245   245   245   245     244   245   245   245   245     245   245   245   245   245     245   245   245   245     245   245   245   245     245   245   245   245     245   245   245   245     245   245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245   245   245     245	21 43.7N 128.7W N 248 1 1 1 2 5 1 2 5 4 4 111 554.29-1 35 278 173219 0 241 10 1 2 3 18 7 11 4 13 14 13 7 3 1 187.00-1 107 5710 16948 173219 2 34 221 14 11 9 2 92 21 77 7 31 37 17 5 1 1 187.00-1 107 5710 16948 173219 5 26 54 39 38 14 58 49 29 17 75 9 49 11 7 5 2 96.00-1 428 11153 15874 17219 5 26 54 39 38 14 58 49 29 17 59 49 11 7 5 2 96.00-1 428 11153 15874 17219 5 27 12 26 6 60 58 128 38 14 10 28 11 12 38 11 13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

22 42.8N 167.5W 244 2 1 2 2 4 1 2 6 12 2 8 2 257.50-1 44 4310 1713 17219 17219 244 2 1 2 2 4 1 2 6 12 2 8 2 257.50-1 44 4310 17113 17219	23 42.4N 172.1E **264
2 41 7 5 2 5 14 11 10 10 24 25 14 8 2 2 1 1 195.50 1 140 7744 16861 17219 2 34 56 24 21 17 60 47 36 27 79 39 10 6 2 3 1 145 75 - 1 427 10611 16017 17219	0 241 25 10 12 8 21 25 19 18 42 38 8 9 2 1 1 1 183.25 - 1 239 8565 16630 17218 234 40 43 36 29 72 62 47 39 83 46 11 6 3 2 102.25 - 1 519 11635 15685 17218
\$ 28 166 78 57 37 121 112 56 47 97 41 9 6 3 1 1 100.50 - 771 12213 14385 17219 6 22 201197 124 93 22113 58 34 92 34 3 4 35.00 - 1 1160 10756 11466 17219 6 271 2011 1241 1241 1241 1241 1241 1241 124	5 2 28 100 80 90 53 102 95 76 41 102 40 8 7 1 1 1 124.50-1 865 12585 14096 172 18 5 22 22 11 52 152 153 252 133 79 37 87 29 5 2 33.25-1 1229 10674 11424 172 18
E > 17 282 198 169 108 256 119 49 35 40 21 18.50 - 1 1265 7865 8125 17219	E ≥ 17 [309]227 [160[129]276[101[65] 38 [53] 11
. > 7[300156199156170[17] {   1	0 ≥ 11 4:4 287 163 109 180 59 26 8 8 8.25 - 1 1253 4306 4432 17218 ≥ 7 442 197 98 51 72 10 3 1 1 1 7.25 - 1 875 1950 1971 17218
25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 WMAX TE T T# TH	2.25 - 1 440 681 690 17218 25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T T TO TH
DAYS INTERVAL BETWEEN EVENTS	DAYS INTERVAL BETWEEN EVENTS
25 40.2N 131.2E	26 39.5N 153.8E *>64 0.00-0 17216 17220
N 248 1 1 8.75-1 2 36 17212 17218 D 241 1 2 1 2 50.75-1 6 477 17182 17218	N 248 2 1 1 2 1 6 8 7 6 2 1 265.75- 37 4554 17141 17220 D 241 4 4 5 3 3 3 7 8 16 20 11 9 2 1 1 1 193.50-1 94 6707 16986 17220
>34[1]1]   3]2]1 1 14[13[9]7[3]1]   ]110.50-1  56  4601 17046 17218	2 34 17 11 8 9 26 29 29 19 58 58 14 9 1 3 151.75 - 1 291 10698 16505 17220 5 28 63 34 33 29 98 71 74 43 98 43 7 6 3 3 133.50 - 1 605 12704 15462 17220
\$ 270 13 9 7 2 22 20 10 17 43 39 15 8 1 118.50 - 1 206 7428 16608 17218 \$ 22 57 27 13 21 67 64 56 42 82 36 7 13 6 1 101.75 - 1 492 12227 15482 17218 \$ 21 96 81 62 47 153 04 70 46 52 46 15 7 5 54.25 - 1 821 12127 15732 17218	P 222 134 51 116 82 222 134 70 49 95 25 7 7 7 1 64 75 -1 1043 11999 13473 17220 E 217 234 234 171 139 234 134 48 11 78 1 35 1 5 1 39 00 -1 1440 10130 10696 17220 O 211 64 7331 1991 130 230 66 39 18 23 2 1 1 2 12 25 25 66 47 17220
D > 11 367 214 139 107 369 125 64 51 56 23 1 35. 25-1 1312 9320 9735 17218 > 7 439 300 192 124 308 99 32 25 14 3 14.00-1 1432 5838 5961 17218	0 > 11 497/331 (199 130/220/66/39 18) 23 2 1 21.25-1 1526 5942 6084 17220 > 7 527/297 (121 79) (121 48/8) 2 3 5.50-1 1176 2905 2929 17220
2 4 450[223[143] 94 143[59] 19 19 12 3 14.00 - 1 1165 4303 4396 17218	n ≥ 4 424 131 60 15 12 1 3.75 - 1 644 1024 1035 17220
25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T TO THE DAYS INTERVAL BETWEEN EVENTS	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T T♥ TH DAYS INTERVAL BETWEEN EVENTS
28 36.1N 123.8W	29 35.9N 171.0W ₩ ≥64
N 248 0.00-0 17217 17219 D 241 1 1 1 2 1 119.00-1 5 821 17194 17219	N 248 2 2 2 2 2 6 2 4 52.00-1 22 1389 17163 17220 0 241 4 5 2 2 8 5 2 5 9 19 9 5 1 130.00-1 76 3909 17034 17220
> 34 8 3 2 6 3 9 8 6 10 4 2 155.00 - 1 61 5444 17068 17219	≥ 34 [18] 17] 10[ 32[ 22] 15[ 11[ 34] 32[ 9 [ 9 ] 3 ] 1   [ 140.00 - 1 231 ] 7619 [16632 ] 17220 ]
22 120 102 68 20 92 68 61 60 114 71 7 5 48.00 - 1 796 12593 14400 17219	>22 137 97 50 54 153 68 51 31 89 41 13 4 4 70 25 - 1 792 11216 13866 17220
U > 11   379  229  130  67  214  91  36  27  20  1	E > 17 212 (45) (0) 79 221 (00) 53 42 91 26 6 3 39.25 - 1 1079 10156 11271 17220 D > 11 341 222 (46) (00) 237 82 43 27 36 7 19.50 - 1 1243 6440 6619 17220
> 7 122 174 109 55 130 20 7 3 4 25 - 3 816 2357 2394 17219	k ≥ 7 412 217 141 79 118 32 16 9 4 7.25 - 1 1026 3090 3136 17220 n ≥ 4 336 118 50 33 29 5 3 2 6.25 - 1 594 1187 1198 17220
25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T T# TH DAYS INTERVAL DETWEEN EVENTS	.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 @ MAX TE T T+ TH DAYS INTERVAL BETWEEN EVENTS
31 35.6N 155.2W	32 35.4N 142.0W
264 0.00-0 17218 17218 221 89.00-1 10 874 17195 17218	* ≥ 64   0.00 - 0   17219 17219   1721
0 241 3 4 3 8 5 4 4 11 15 6 3 2 149.50 68 3641 17074 17218 2 3 16 9 11 3 38 17 12 11 24 19 7 14 2 149.75 1 183 6902 16710 17218	D >41 4 1 1 1 4 1 2 1 4 4 2 2 70.25-1 27 1571 17153 17219 >34 16 8 4 7 16 9 3 5 14 12 9 9 1 69.25-1 113 4272 16905 17219
5 28 34 35 19 22 53 41 22 17 56 42 7 8 9 4 164.25 1 394 10561 15891 17218 22 104 61 51 33 104 155 15 39 4 17 16 55 9 7 7 3 115.75 1 651 11682 14220 17278 22 104 61 51 33 104 158 65 9 37 66 35 14 6 2 2 78.00 1 9 09 1024 11856 17218	\$\rightarrow{\rig
E > 17 157 104 84 84 163 66 59 37 68 35 4 6 2 78.00 - 1 909 10214 11856 17218  D > 11 280 173 140 122 222 91 49 27 46 8 2 1 31.25 - 1 1171 7070 7368 17218	E ≥ 17 128 8 1 6 5 4 1 144 7 6 5 2 30 7 0 4 5 1 1 6 1 1 1 103.25 - 1 75 1 109 13 1289 3 172 19  D ≥ 11 247 134 9 5 8 3 183 108 50 50 3 1 7 8 1 8 1 3 39.25 - 1 1028 7 8 7 5 8 4 4 1 172 19
D >11   200   123   100   122   222   91   90   27   46   B   2   1	k ≥ 7 326 180 125 85 150 75 33 10 17 2 1 21.00-1 1004 4382 4505 17219
.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 @ MAX TE T T= TH DAYS INTERVAL SETWEEN EVENTS	n > 4   318  143  72  52  70  17  7   4   2           6.25 - 1   685   1847   1895   17219   25 5 75 1 2 3 4 5 10 20 30 60 90 180 360 © MAX TE T T+ TH  DAYS INTERVAL BETWEEN EVENTS
34 34.2N 155.1E	35 34.2N 163.8E
* 264 0.00 - 0 17220 17220 248 1 1.50 - 1 1 6 17212 17220	₩ ≥ 64     0.00-0     17220     17220       N ≥ 48     1     1     1     57.00-1     3     301     17203     17220
0 241 1 2 1 1 1 2 4 1 32.25-1 14 717 17186 17220 234 9 3 2 7 8 8 6 18 23 9 7 1 1 195.50-1 102 5324 17001 17220	D 241
> 28 30 11 9 8 39 23 30 22 59 41 12 10 1 3 156.50 - 1 298 9961 16477 17220	S > 28 37 20 14 22 50 45 30 20 55 42 10 10 5 79.75 1 360 9783 16275 17220 6 22 96 70 75 62 45 84 89 37 78 35 14 8 2 1 91.25 1 818 12110 14559 17220
E 222 884 50 [41] 37 [31] 84 [77] 48] 97 [41] 9 [7] 2 [87.00 - 1] 708 [11755 15039] 17220 E 217 [101] 101 [21] 285 [23] 1468 [5] 147 [24] 101 [2] 285 [23] 102 [2499] 17220 E 217 [2499]	E ≥ 17 [203[141]144[88]241[139[65]47[77]26[9]3           42.75 - 1   1183 [10822]11825 [17220]
> 7 878 297 163 108 153 34 11 2 7 9.75 - 1 1247 3640 3705 17220	≥ 7 [452] 230[151] B5[134] 30[10] 6 [ 6 ]
	25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 $\alpha$ MAX TE T To TH
Days interval between events  37 32.9N 119.4 W	DAYS INTERVAL BETWEEN EVENTS 38 31.5N 127.7W
264 0.00 0 17217 17217 248 0.00 0 17217 17217	W 264 0.00-0 17219 17219 N 248 0.00-0 17216 17219
0 >41 0.00-0 17217 17217 >34 0.00-0 17217 17217	
> 28 7 4 10 2 8 1 6 1 11 18 7 8 2 6 174.25 - 1 91 7576 17056 17217	5 28 11 2 1 3 4 1 5 9 10 8 12 3 77.00-1 69 4891 17014 17219
E 22 74 56 42 3 30 36 78 79 70 46 14 17 3 87.25-1 443 11454 16136 17217 E 217 177 195 116 20 128 108 61 48 105 48 8 3 1 66.75-1 985 11836 13821 17217	E 222 42 15 10 8 28 28 15 11 50 48 30 13 1
E >17 177 199 118 20 139 108 61 48 109 48 8 3 1 66.75 - 1 985 11838 13821 17217 D >11 519 272 213 47 218 118 50 33 43 5 12.50 - 1 1518 7271 7649 17217 D > 14 519 272 213 47 218 118 50 33 43 5 5 12.50 - 1 1518 7271 7649 17217 D > 4 577 199 179 28 60 8 2 5 5.00 - 1 1063 3022 17217	E 217   199   65   68   31   103   79   48   48   100   68   15   2   45,75 - 1   763   12517   14089   12719   0   21   122739   33   79   222   123   55   60   74   10   13,25 - 1   1166   7977   8525   17219   2   2   2   2   2   2   2   2   2
.25 .77 1 2 3 4 5 10 20 30 60 90 190 360 60 MAX TE T TH	n > 4 332 132 74 43 50 9 2 2 4 4 5 10 20 30 60 90 90 360 90 MAX TE T TO TH
DAYS INTERVAL DETWEEN EVENTS	DAYS INTERVAL DETWEEN EVENTS
# 264   0.00-0   17219   17219   20-0   17219   20-0   17219   20-0   20	# 264   29.4N 134.9E
D ≥41 1 1	N 248 0.00-0 17214 17220 0 241 2 1 287.25-1 3 1604 17203 17220
2 20 16 12 4 8 11 8 12 7 34 11 9 4 1 63.50 - 1 137 3663 16795 17719	> 34
E > 22 75 26 34 26 56 32 21 18 53 36 13 8 2 3 164.00-1 405 10178 15776 17219 E > 17 446 71 56 37 111 62 42 32 49 49 7 9 1 1 100.75-1 722 11270 13768 17219	E 22 36 18 12 8 22 18 10 16 59 60 28 15 2 2 1 111.50 4 306 12624 16263 17220 E 217 128 46 42 27 168 82 65 55 113 79 9 15 1 52 75 - 1 754 12847 144 9 17220
D 211 316 ted 122 ted 222 52 57 64 72 12 1 23.75 - 1 1203 6049 6497 17216 2 7 1 mi ted 122 64 173 64 173 64 13 12 7 6 12 12 19 6 12 12 12 19 6 12 12 12 19 6 12 12 12 12 12 12 12 12 12 12 12 12 12	0 > 11 279 199 122 97 317 100 80 36 54 11 17.50 - 1 1317 8902 9336 17220 2 7 410 200 109 110 222 64 19 12 11 2 10.50 - 1 1269 4722 4821 17220
.25 .5 .75 1 2 3 4 5 10 20 30 60 90 180 360 WAX TE T To TH	25 .5 .75 1 2 3 4 5 10 20 30 60 90 190 360 WMAX TE T TO TH
DAYS INTERVAL BETWEEN EVENTS	DAYS INTERVAL BETWEEN EVENTS

₩ ≥64 | N ≥48 | D ≥41 | S ≥ 28 | E ≥ 27 | D ≥ 11 | k ≥ 7

# 264 N 248 D 241 S 228 E 227 D 211 k 2 7 n 2 4

₩ ≥64 N ≥48 D ≥41 S ≥ 28 E ≥ 22 E ≥ 17 D ≥ 11 k ≥ 7 n ≥ 4

₩ 264 N 248 D 241 S 28 E 222 E 217 D 211 h 2 7

## ont'd)

## ANNUAL

23 42.4N 172.1E  248 4 3 3 3 1 8 8 5 9 17 15 6 9 1 1 2 255.75 1 4 585 17195 17218  248 4 3 3 3 1 8 8 5 9 17 15 6 9 1 1 2 255.75 1 9 1 5944 16990 17218  248 40 43 36 29 72 62 47 39 83 46 11 6 3 2 1 1 1 183.25 1 299 8565 16650 17218  248 400 43 36 29 72 62 47 39 83 46 11 6 3 2 1 102.25 1 399 8565 16650 17218  248 109 80 90 53 103 95 76 61 102 40 8 7 1 1 1 124.50 1 865 12585 14096 17218  249 22 22 121157 152 103 229 103 79 73 78 72 9 5 2 1 33.25 1 1229 10674 11424 17218  240 27 52 103 103 100 100 59 26 8 8 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	24
N   264	27   38.2N   127.4 W   12.19   172.19
## 264   2   2   2   2   2   2   2   2   2	N   264
32 35.4N 142.0W  N > 64  N > 65  N > 67  N > 68:00-1   3 391 17207 17219   172	33   34.69   145.9E   17220
N   264	36 33.7N 123.9E  N > 64  N > 6
38 31.5N 127.7W  346 0 0.00-0 177219 17719  347 0.00-0 177218 17219  348 0.00-0 177218 17219  349 0.00-0 177218 17219  341 0.1 1 1 1 0.1 17.75-1 2 102 17219  342 0.1 1 2 1 3 4 1 5 9 10 8 12 3 177.00-1 69 4891 17014 17219  349 11 2 1 3 4 1 5 9 10 8 12 3 177.00-1 69 4891 17014 17219  349 11 2 1 10 8 28 28 15 11 19 30 48 30 31 1 68.25-1 299 1052 16346 17219  349 17 184 185 186 187 187 187 187 187 187 187 187 187 187	39
# 1	\$264   0.00-0   17219   1721
	237

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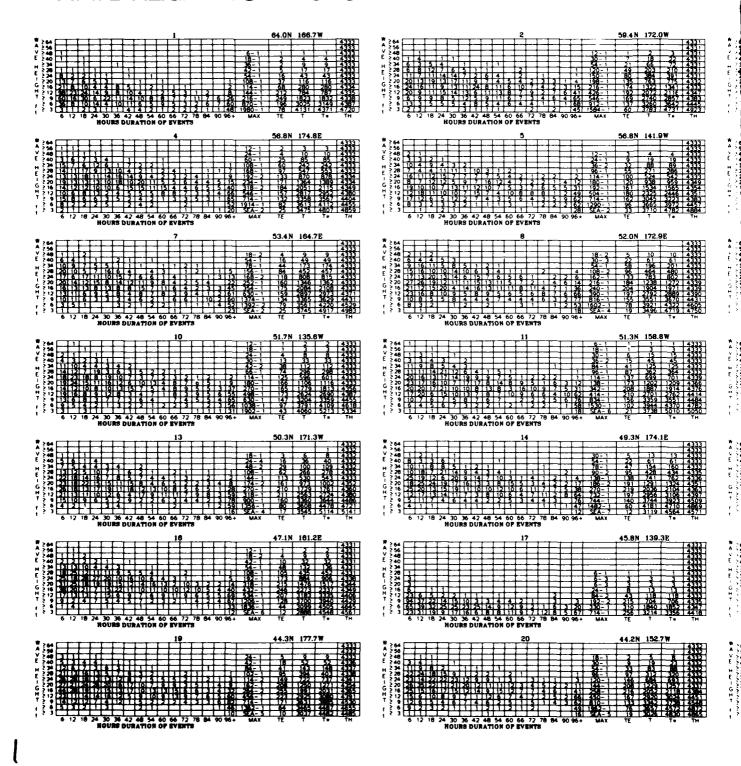
### WIND SPI

43 28.2N 125.9E	44 27.9N 150.7E
# 546   0.00-0   17219 17719   17219	\$\color{1}{\color{\color{1}{\color{\color{\color{1}{\color{1}{\color{\color{\color{\color{1}{
46 26.1N 170.8E    264	# 25.0N 119.4W   240   0.00-0   17219 17219   440   240   241   240   241   240   241   240   241   240   241   24
# 264   0.00-0   17720 17220     248   2   0.00-0   17720 17220     248   2   0.00-0   17720 17220     248   2   0.00-0   17726 17220     248   3   0   1   1   2   4   3   1   1   275. 35-1   23   240     25   26   35   9   7   7   6   8   7   5   21   24   11   12   2   3   161   25-1   157   7186   16748   17220     25   27   27   28   29   28   27   27   28   28   28   28   28	\$\begin{array}{c c c c c c c c c c c c c c c c c c c
19.2N   127.8W   17219   172	** 264   ***
17.6N   138.5E   17.6N   17.6N	** *** *** *** *** *** *** *** *** ***
364   1	\$264
8) 12.0N 156.7E 1 240 0.00-0 17220 17220 0 241 0.00-0 0.00-0 17219 17220 0 241 0.00-0 0.00-0 17219 17220 0 241 1.00-0 0.00-0 17219 17220 5 240 5 2 1 2 1 3 4 4 3 2 1 103.75-1 27 2191 1738 17220 5 240 5 2 2 1 7 13 10 4 17 7 11 6 2 2 29 12 10 1 3 1 240.25-1 20 8243 16643 17220 6 2 17 203 55 67 32 77 43 20 30 65 47 127 7 2 2 135.75-1 670 11159 14891 17220 0 2 11 207 127 204 41 197 78 44 28 61 24 5 2 4 44.50-1 1256 7823 8533 17220 0 2 1 2 4 2 6 2 4 3 3 9 5 2 2 2 4 44.50-1 1256 7823 8533 17220 0 2 1 2 4 2 6 2 4 3 5 5 6 7 32 77 43 20 30 65 67 127 7 2 3 1 35.75-1 670 11159 17220 8533 17220 0 2 1 2 4 2 6 2 4 3 3 9 5 2 2 2 4 44.50-1 1256 7823 8533 17220 0 2 1 3 5 7 5 7 5 7 5 7 5 7 7 7 7 7 7 7 7 7 7	

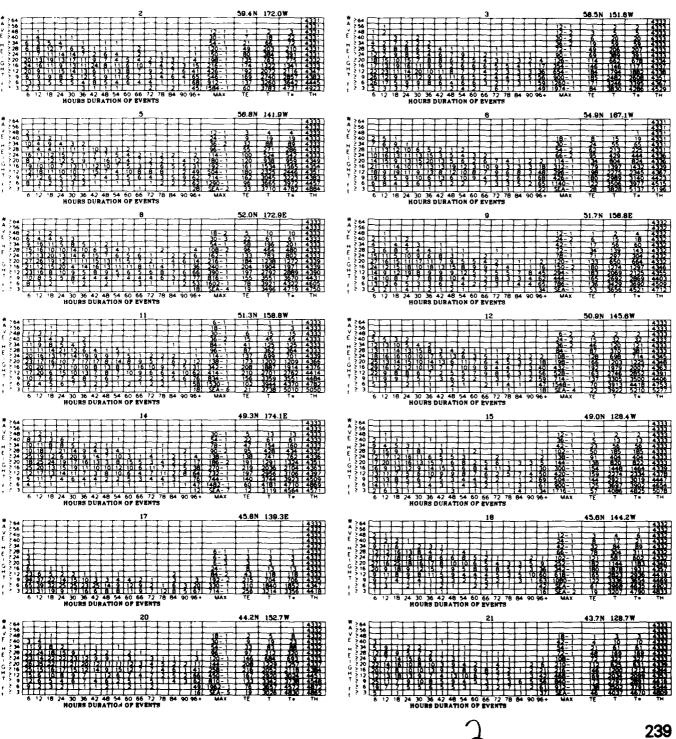
1	N 248   0.00 - 0   17219   17
.64 47 25.0N 119.4W 48 48 48 49 40 0.00 0 17219 17219 44 48 48 0.00 0 0 17219 17219 48 48 49 0.00 0 0 17219 17219 49 49 40 0.00 0 17219 17219 49 40 0.00 0 17219 17219 49 40 0.00 0 17219 17219 49 40 40 40 40 40 40 40 40 40 40 40 40 40	## 264   0.00 - 0   17220 17220     248   0.00 - 0   0.00 - 0   17220 17220     248   0.00 - 0   0.00 - 0   17220 17220     249   0.00 - 0   0.00 - 0   17220 17220     240   0.00 - 0   0.00 - 0   17220 17220     240   0.00 - 0   0.00 - 0   17220 17220     240   0.00 - 0   17220 17220     240   0.00 - 0   17220 17220     240   0.00 - 0   17220 17220     240   0.00 - 0   17220 17220     240   0.00 - 0   17220 17220     240   0.00 - 0   17220 17220     240   0.00 - 0   17220
21.7N 162.7W  21.7N 162.7W  21.7N 162.7W  21.7N 162.7W  21.7N 162.7W  22.73 162.7W  22	51 20.5N 177.1W  248 0 0.00-0 17220 17220  249 0 0.00-0 17220 17220  244 0 0.00-0 17220 17220  244 0 0.00-0 17220 17220  244 0 0.00-0 17220 17220  25 24 0 0.00-0 17220 17220  25 26 2 1 1 6 4 1 1 3 1 1 230.25-1 20 . 4 17154 17220  27 28 21 145 27 40 22 60 32 27 23 44 58 19 12 2 1 65.25-1 588 1244 14862 17220  28 21 145 27 40 22 60 32 27 23 44 58 19 12 2 1 65.25-1 588 1244 14862 17220  29 11 598 132 92 71 202 115 75 42 59 14 1 16.75-1 1720 1720 1720 1720 1720 1720 1720 172
53 18.5N 120.7E  18.5N 120.7E  18.6 N 120.7E  18.6 N 120.7E  18.7 N 120.7E  18.7 N 120.7E  18.8 N 120.7E  18.7	\$\begin{array}{c c c c c c c c c c c c c c c c c c c
17.6N 111.5W  18.6   0.00 - 0   17213 17213    18.6   0.00 - 0   17213 17213    18.6   0.00 - 0   17213 17213    18.6   0.00 - 0   17213 17213    18.6   0.00 - 0   17213 17213    18.6   0.00 - 0   17213 17213    18.6   0.00 - 0   17213 17213    18.6   0.00 - 0   17213 17213    18.6   0.00 - 0   17213 17213    18.6   0.00 - 0   17213 17213    18.6   0.00 - 0    18.6   0.00 - 0    18.	\$264
56 14.0N 160.6W  A48 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	60 12.2N 112.6E    240
64 4.IN 108.78  4.64 7.701 (17201)  4.65 7.701 (17201)  4.70 0.00 0 0 1.7201 (17201)  4.70 0.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	63 2.1N 123.6E  1 > 46  N > 46



#### WAVE HEIGHT DURATIONS



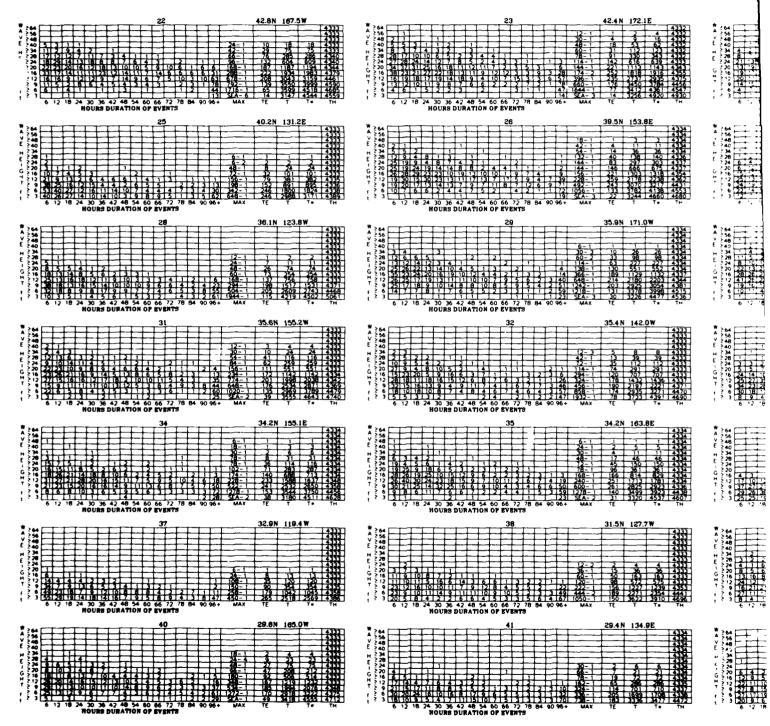
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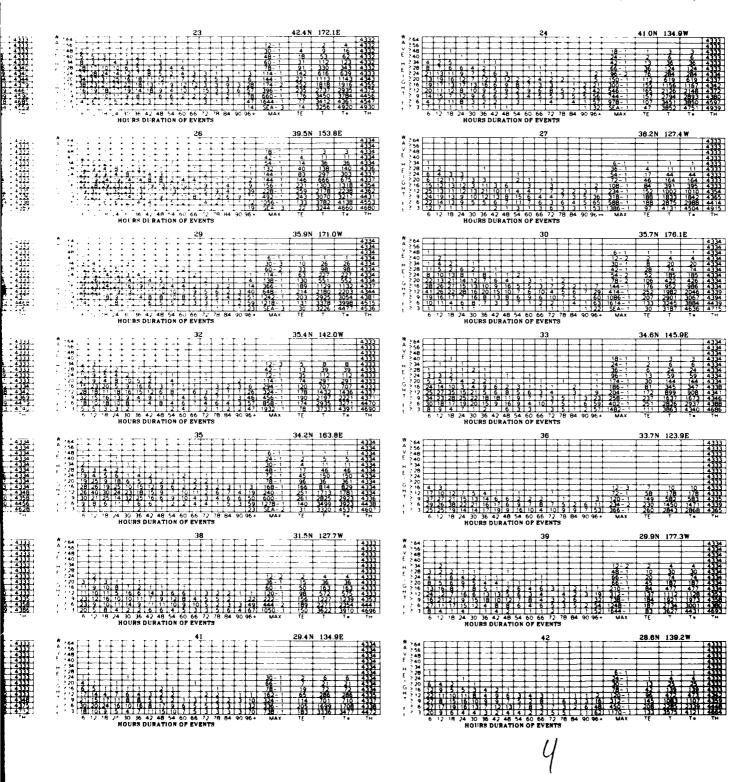


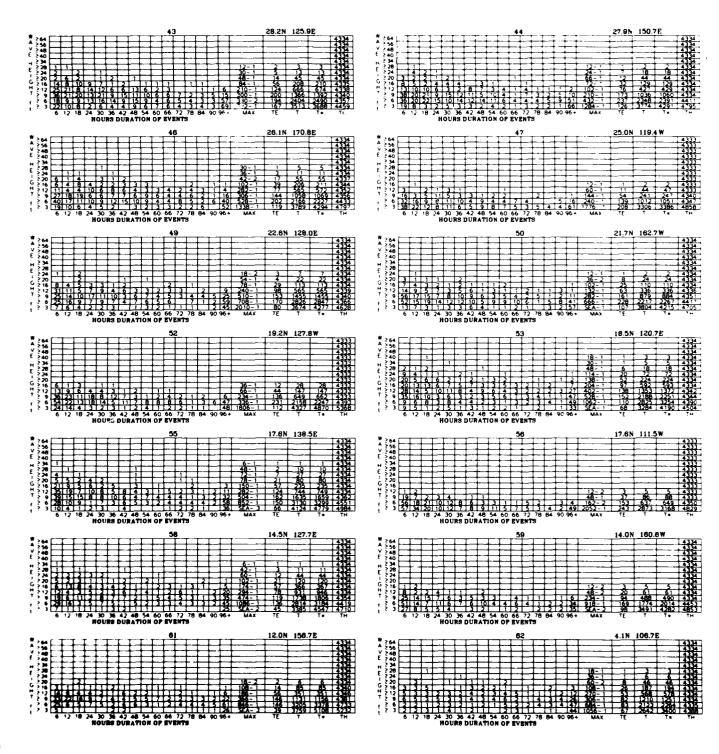
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### **WINTER**

## WAVE HEIGH

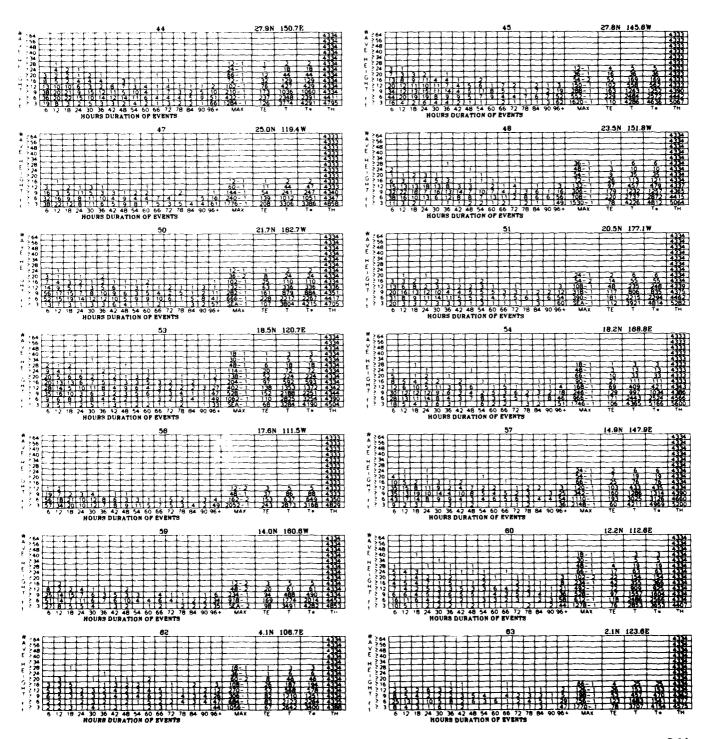






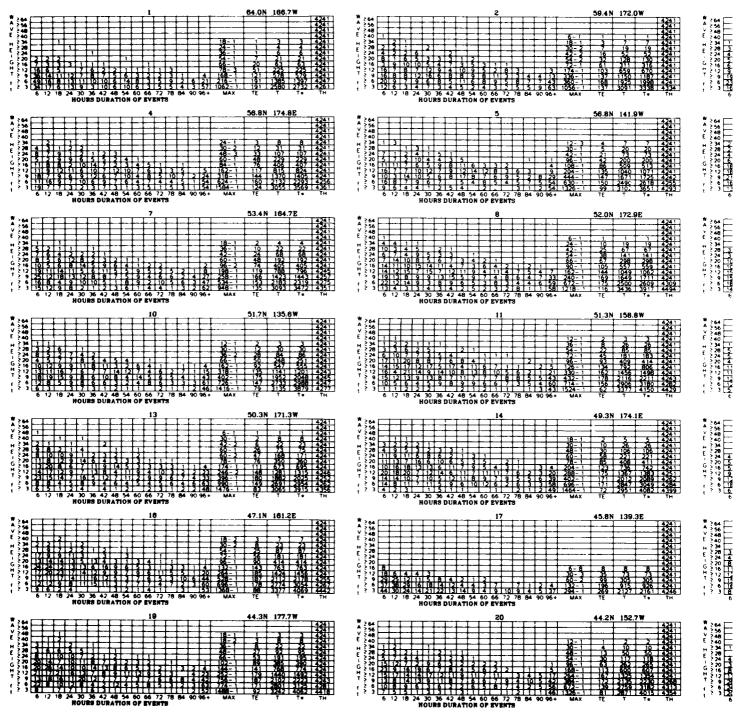
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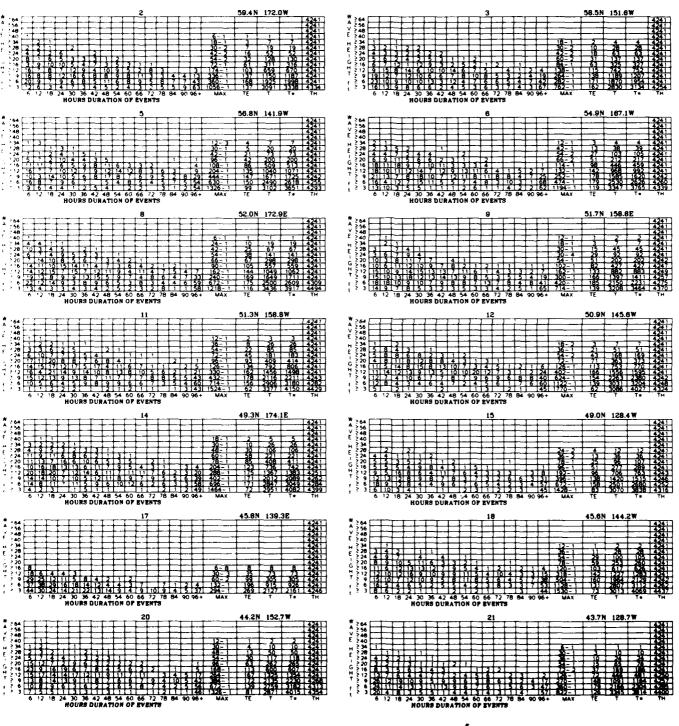


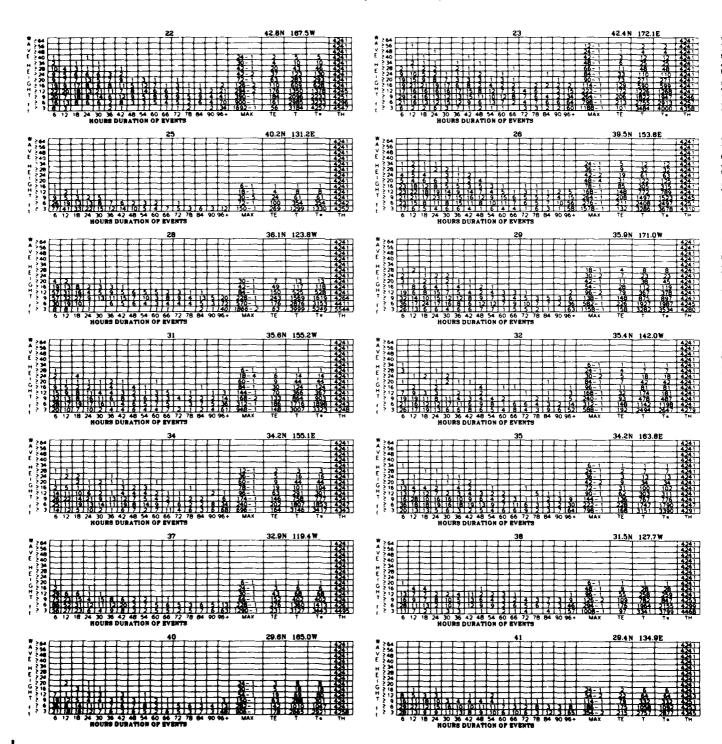
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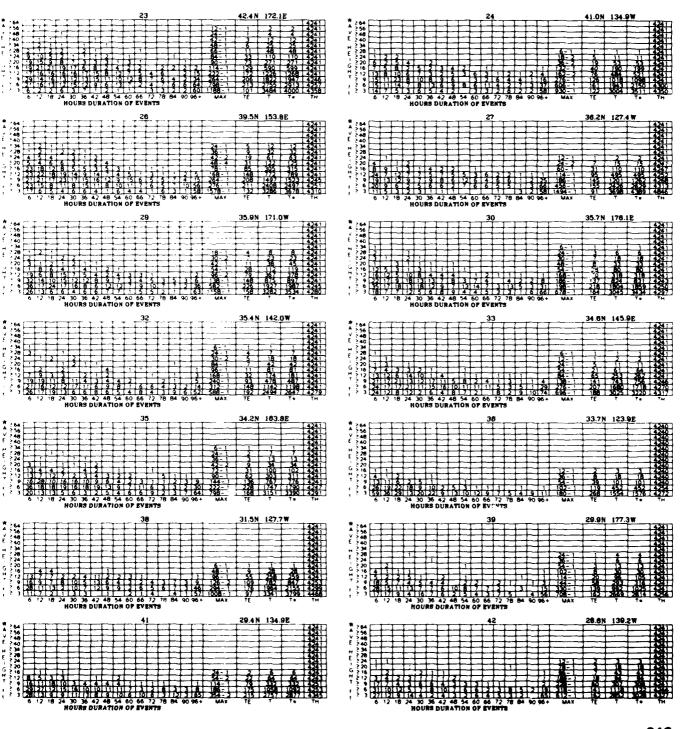
#### WAVE HEIGHT DURATIONS





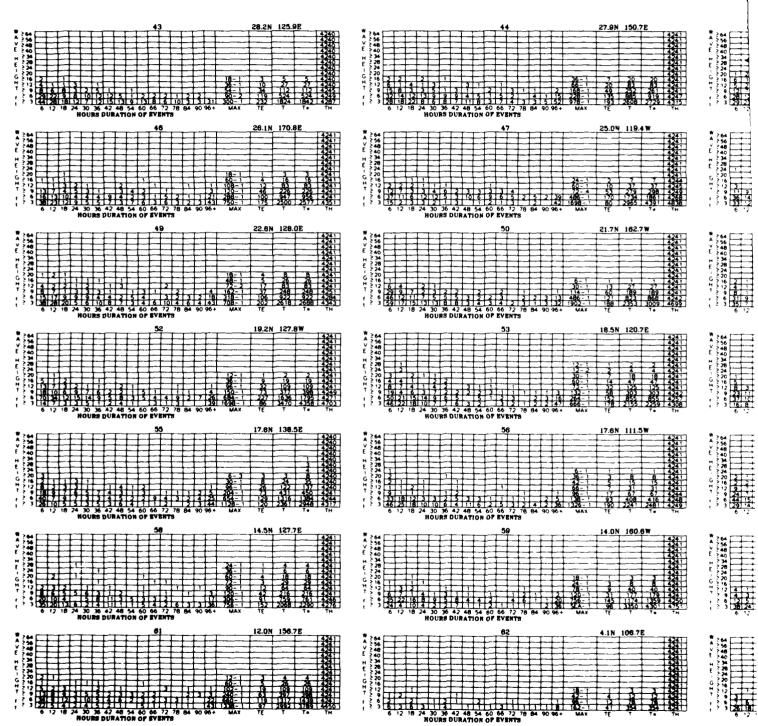
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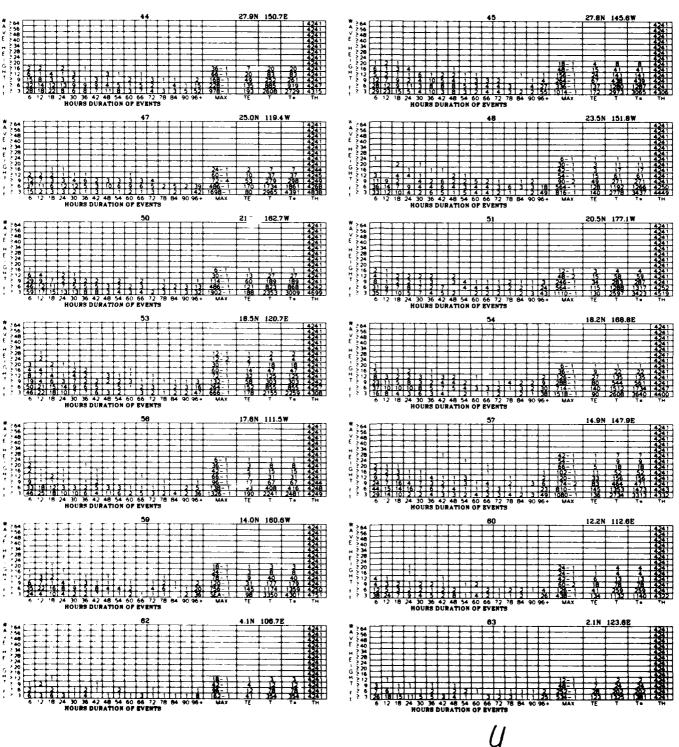


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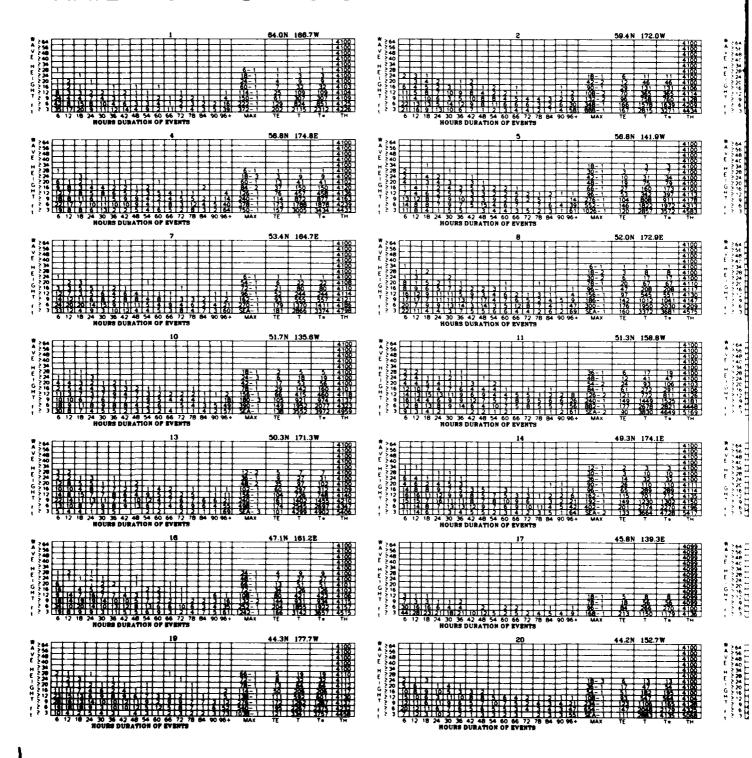
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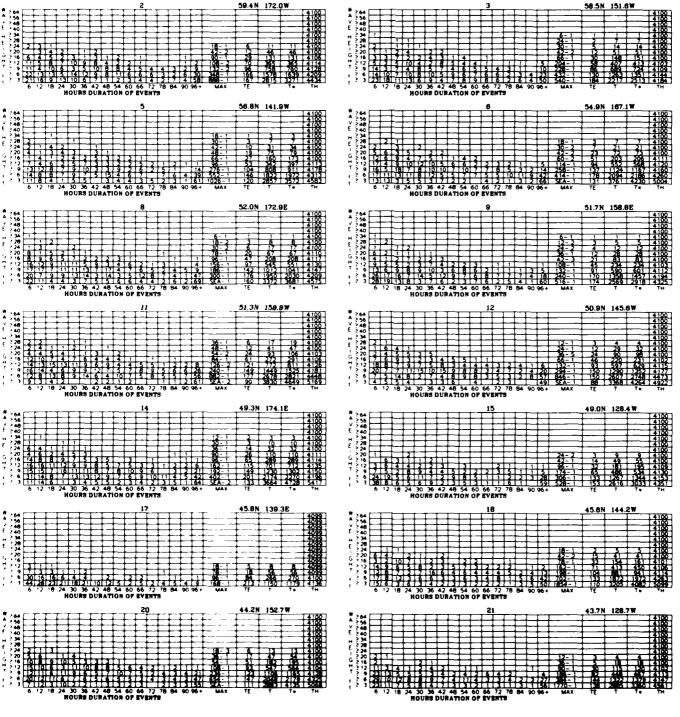
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#### WAVE HEIGHT DURATIONS



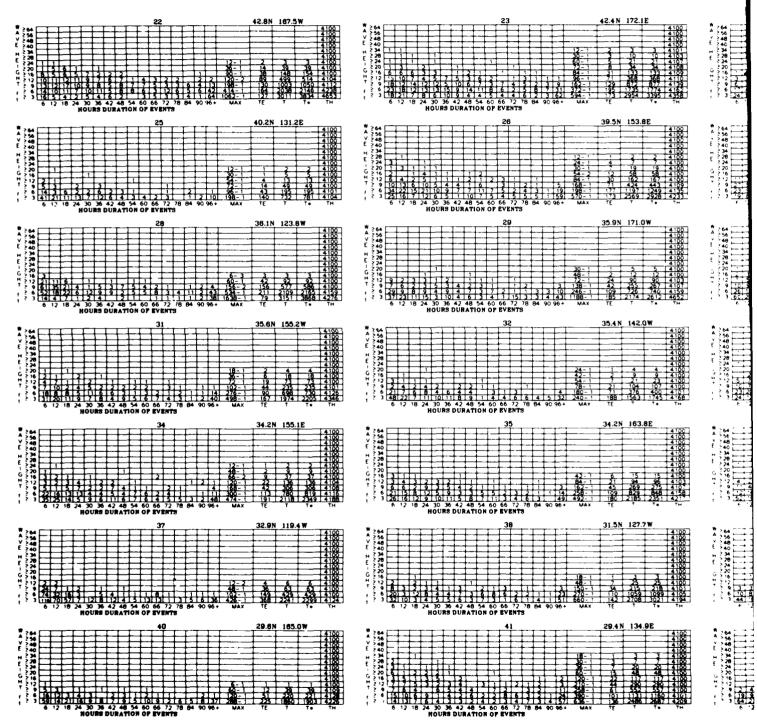
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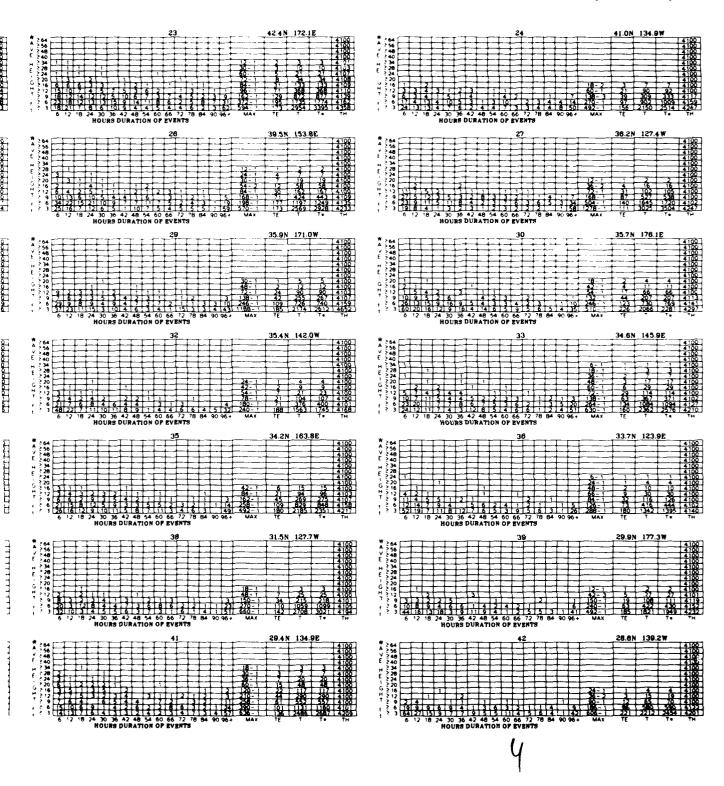


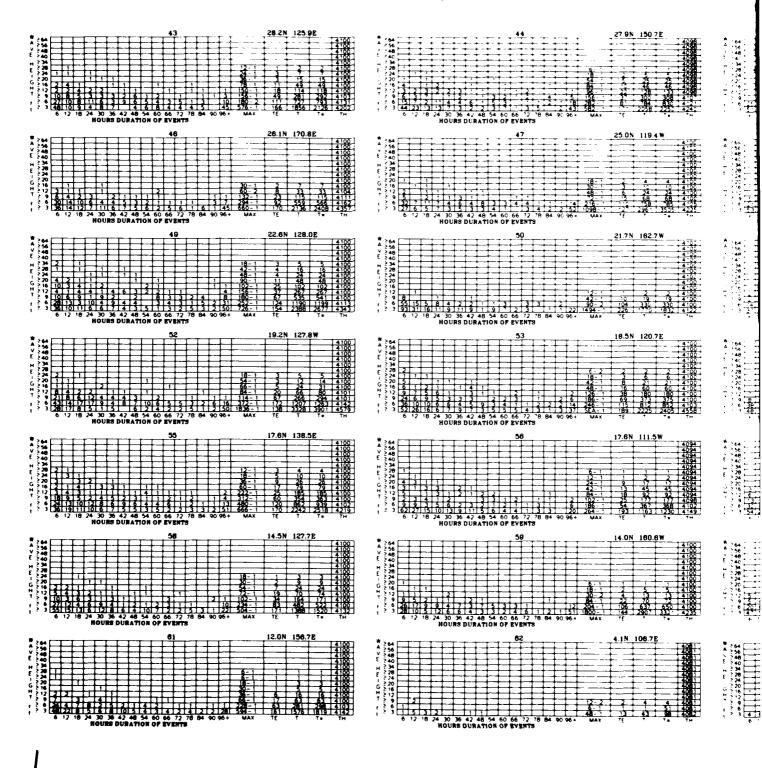
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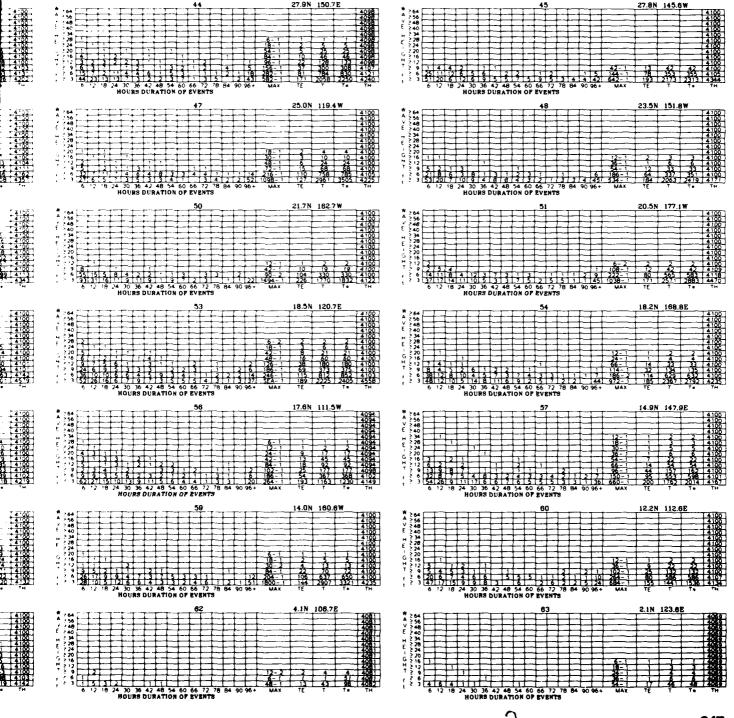


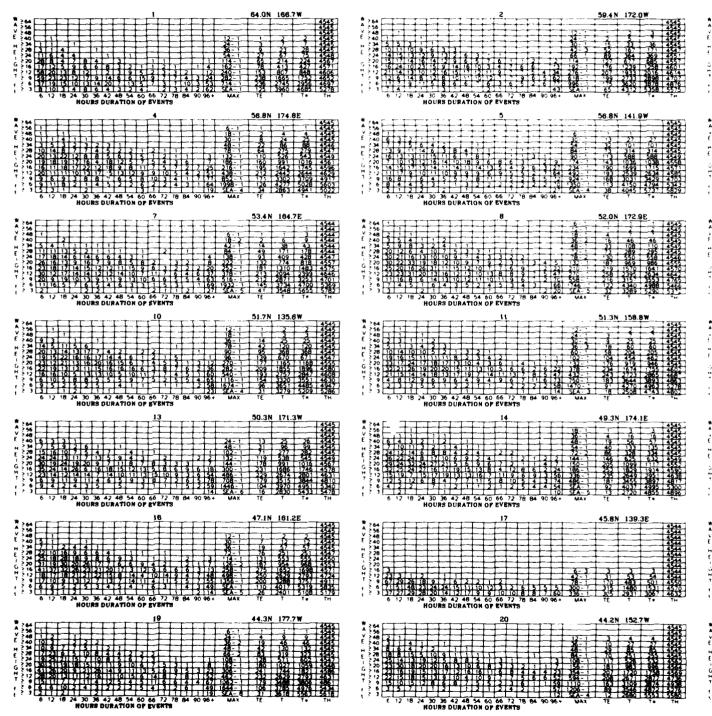




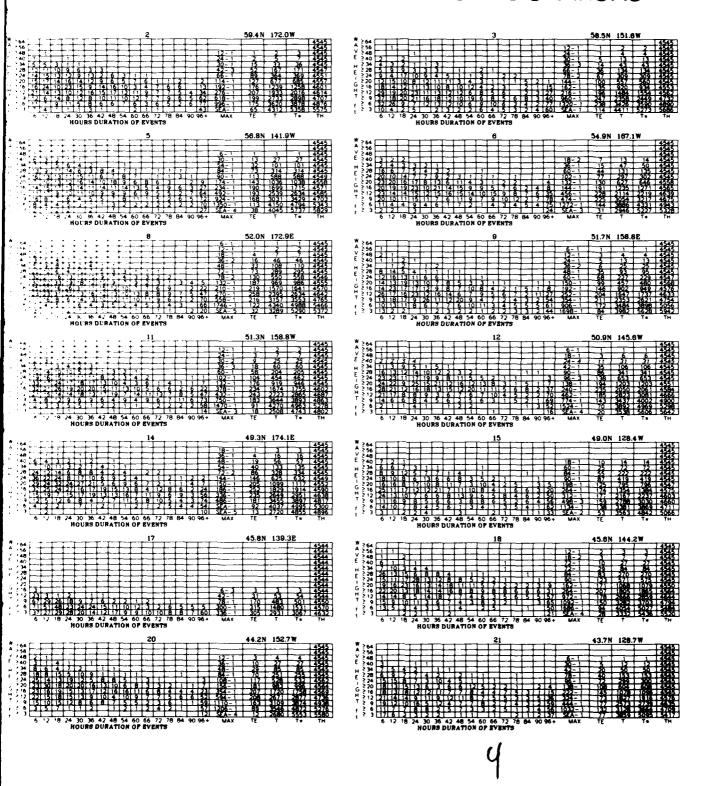
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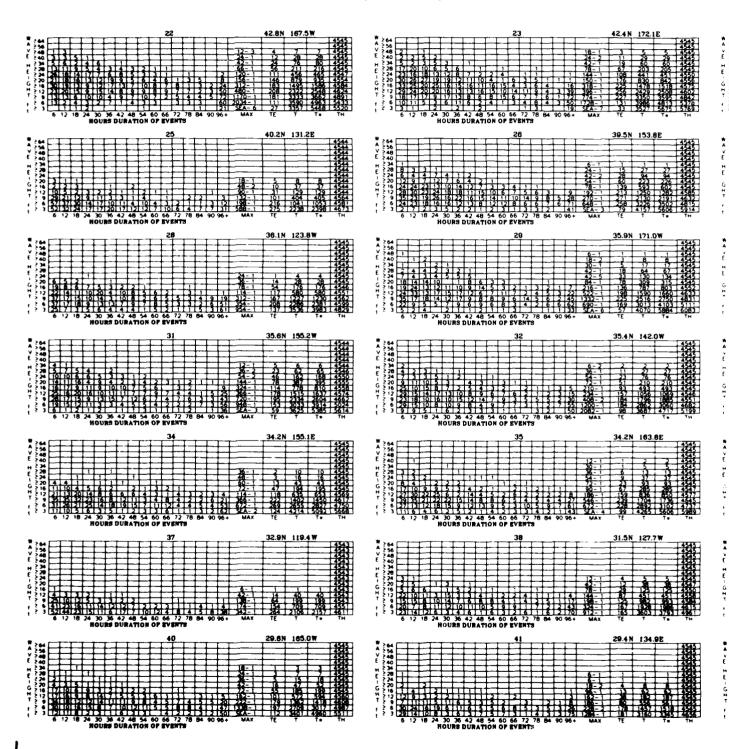
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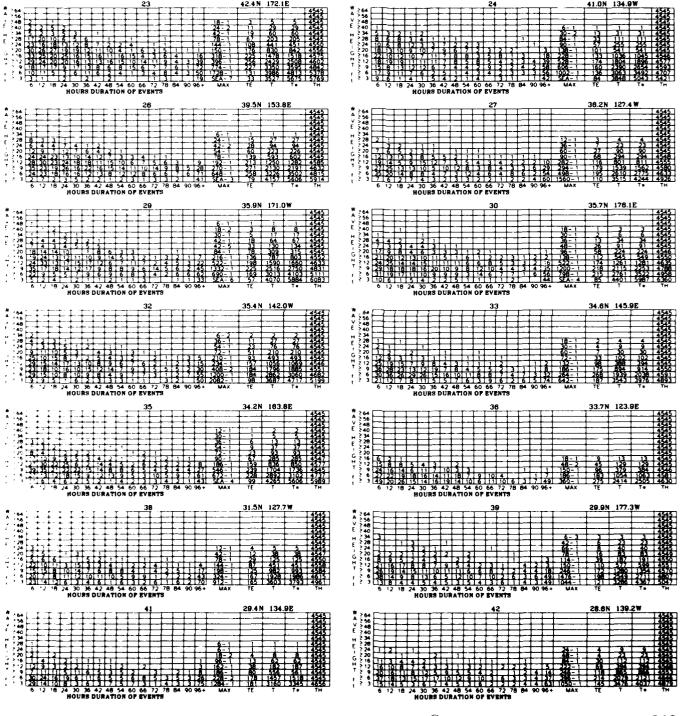
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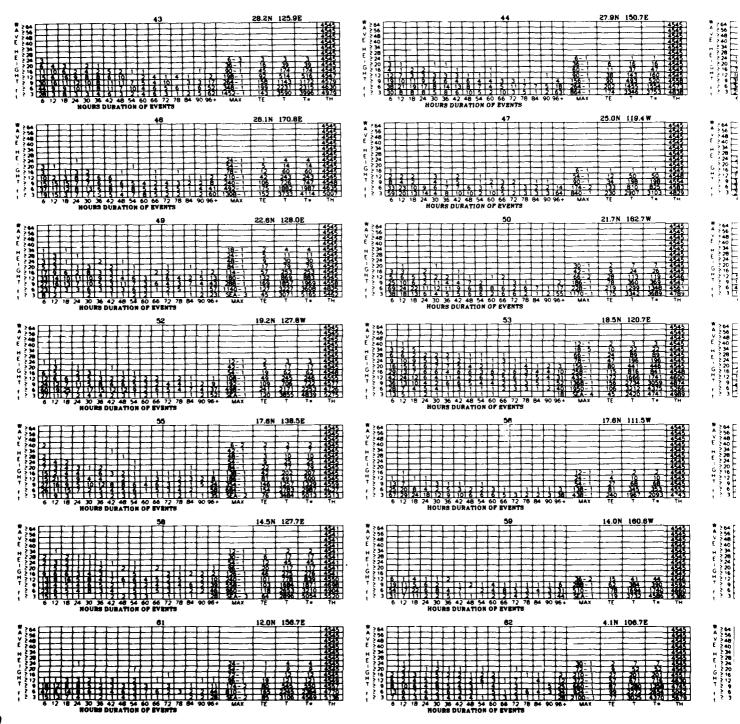
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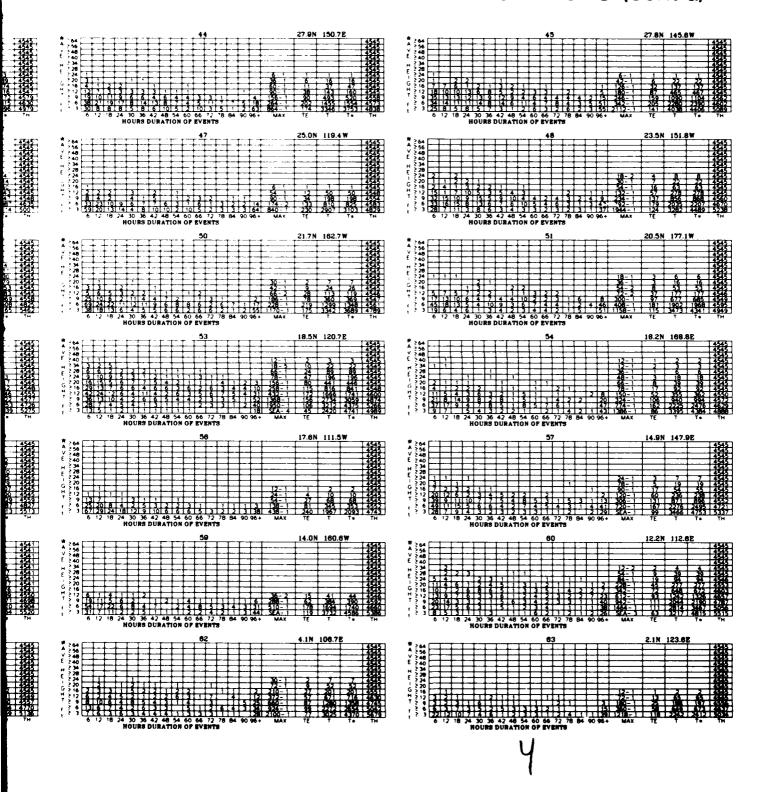
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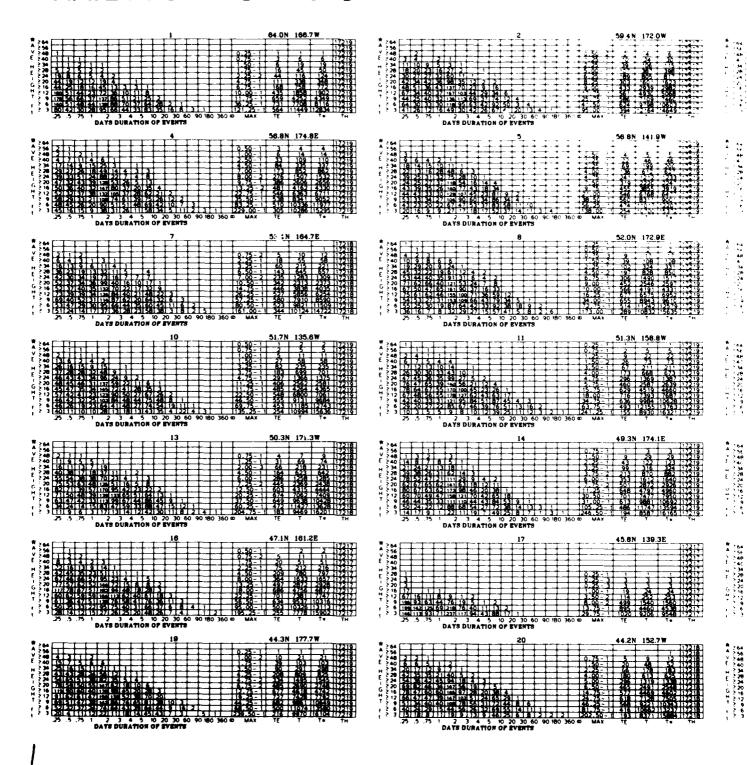
## **FALL**

# WAVE HEIG



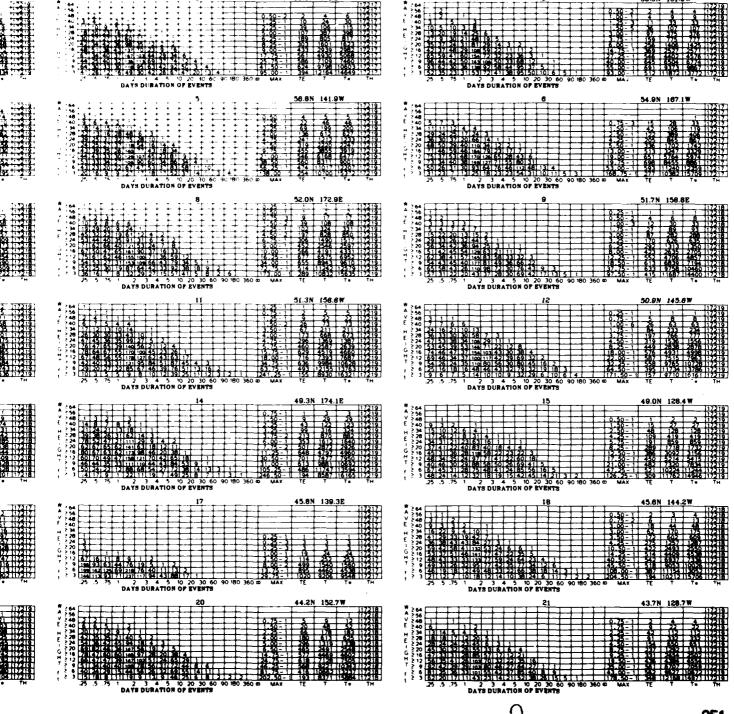


#### WAVE HEIGHT DURATIONS



#### **SN**

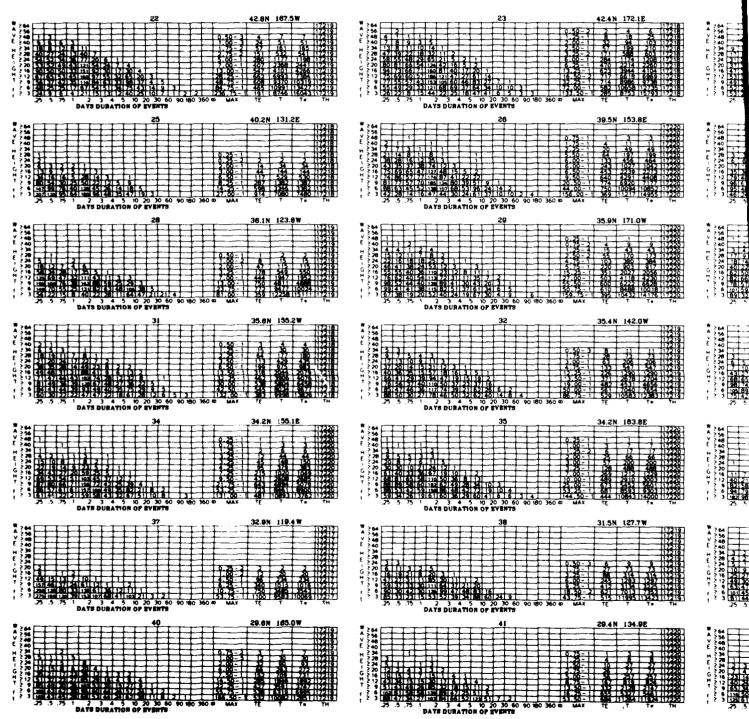
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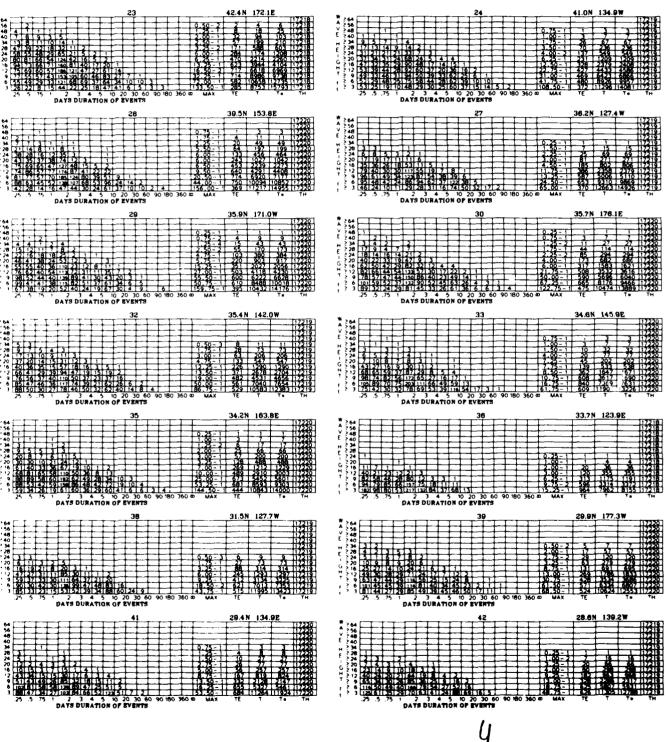


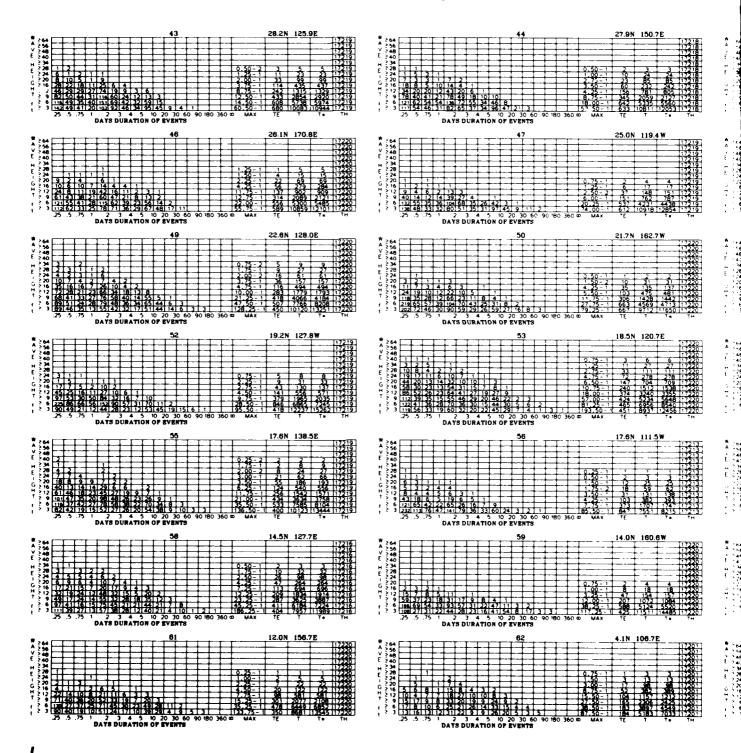
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#### **ANNUAL**

### WAVE HEIGH

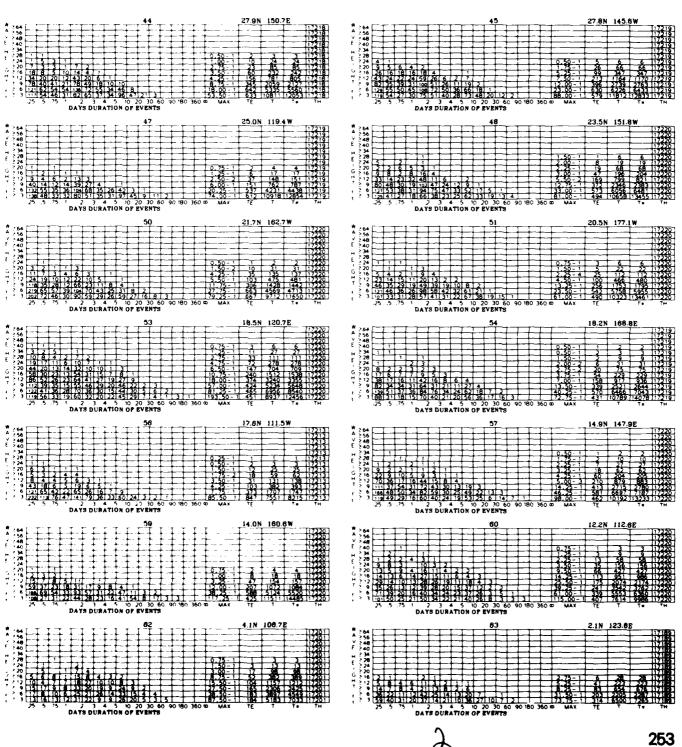




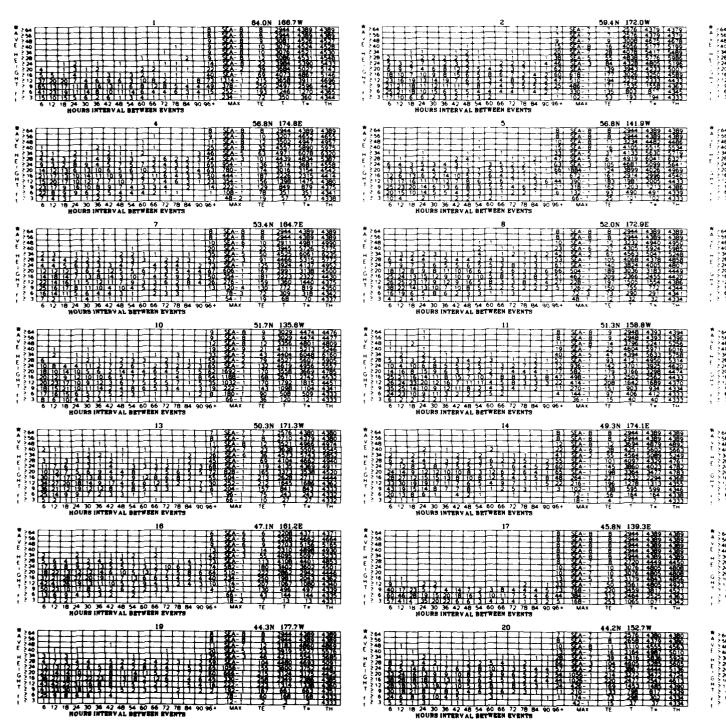


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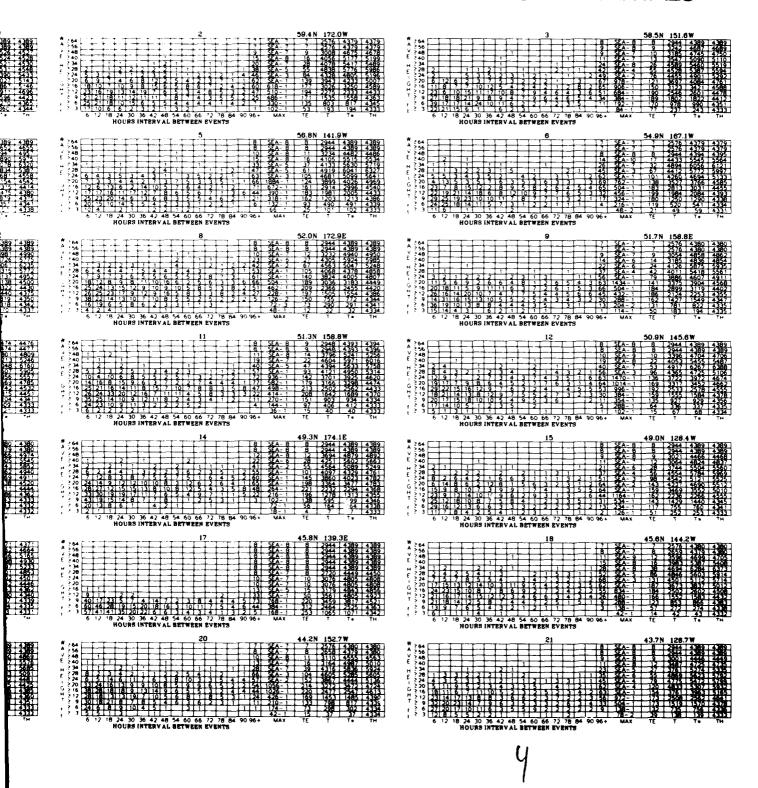


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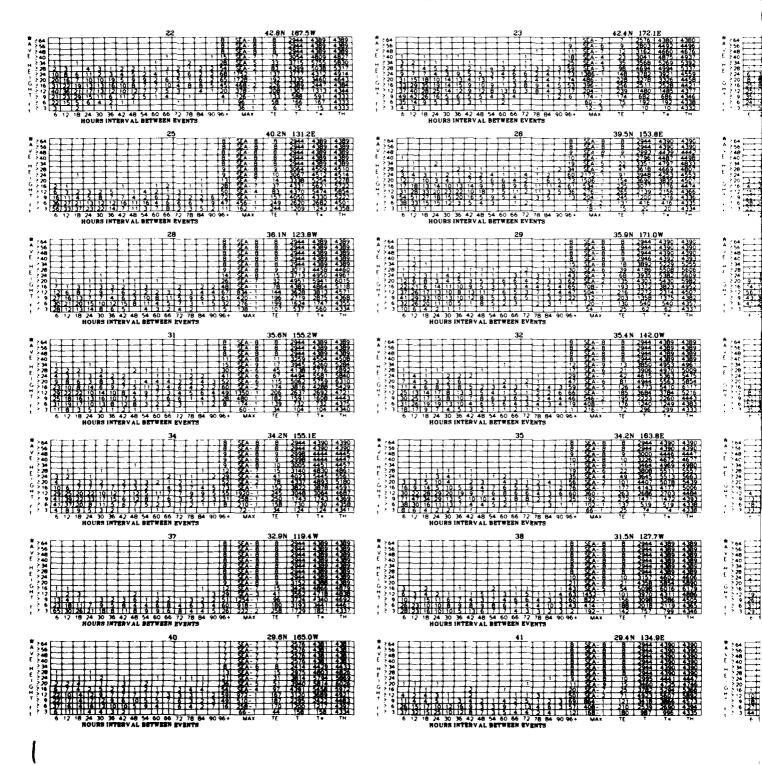


254

## WAVE HEIGHT INTERVALS

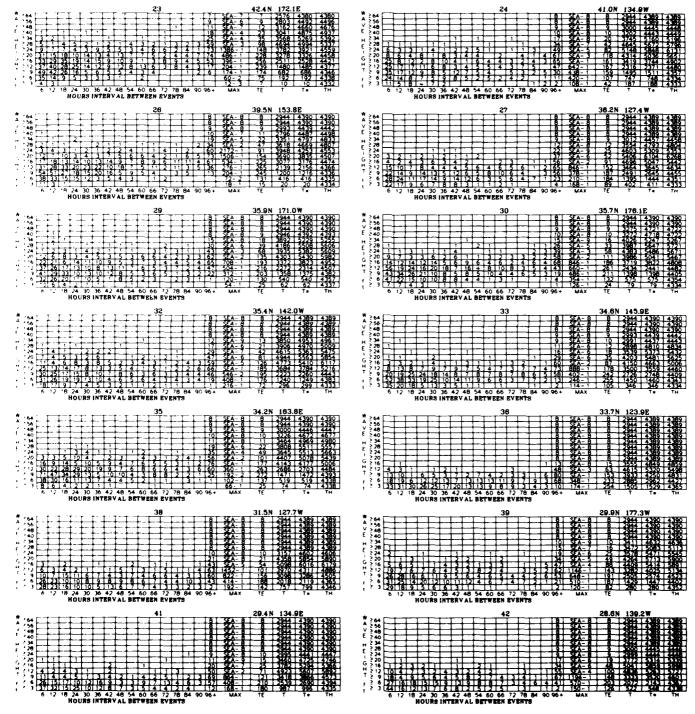


## WAVE HEIGHT INTERVALS (Cont'd)



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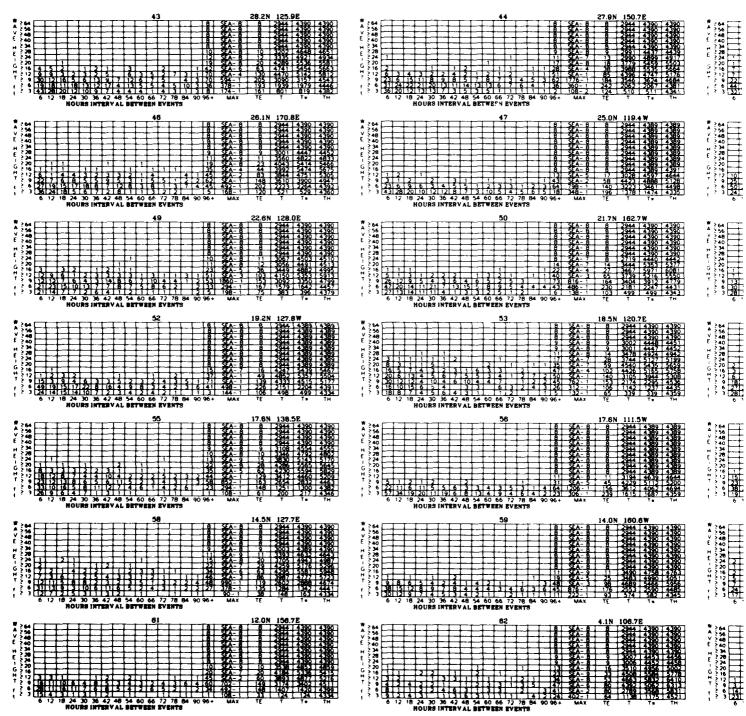
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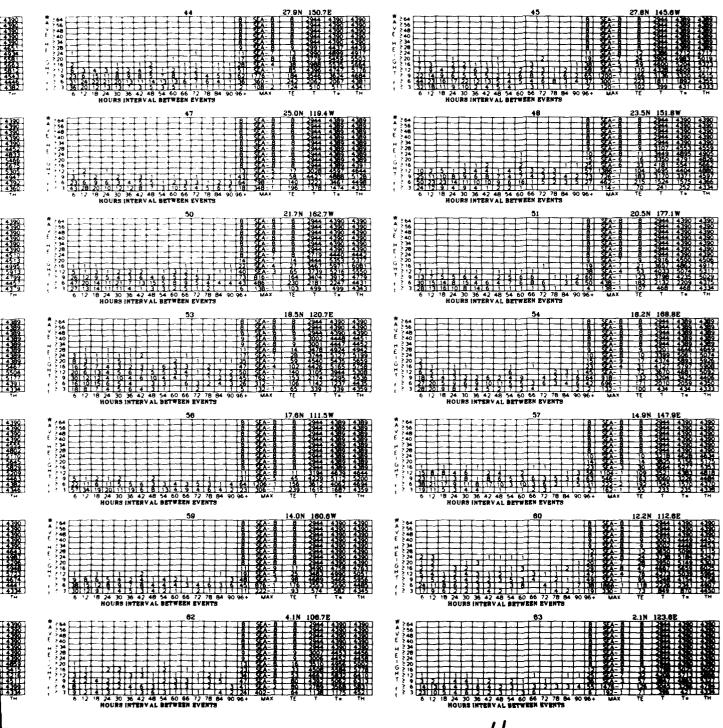
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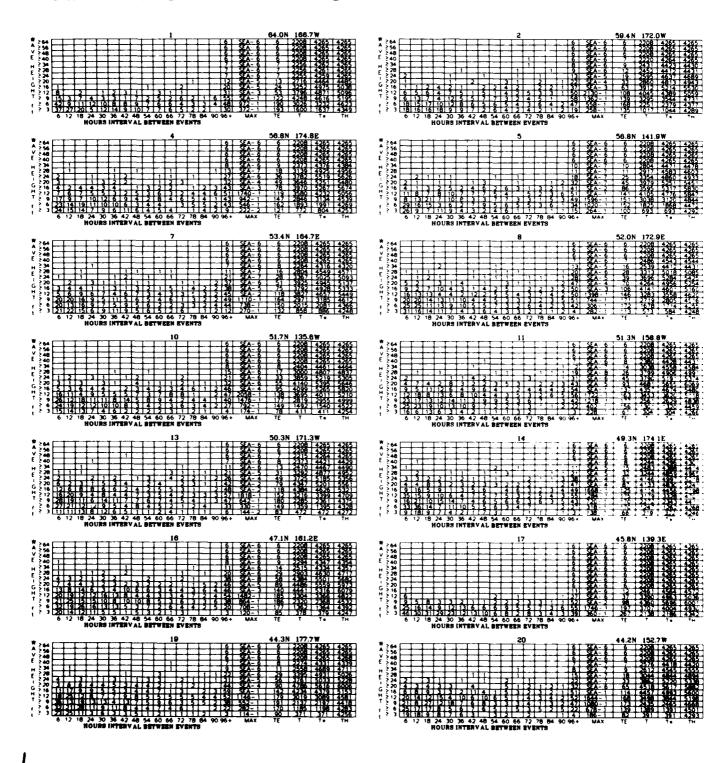
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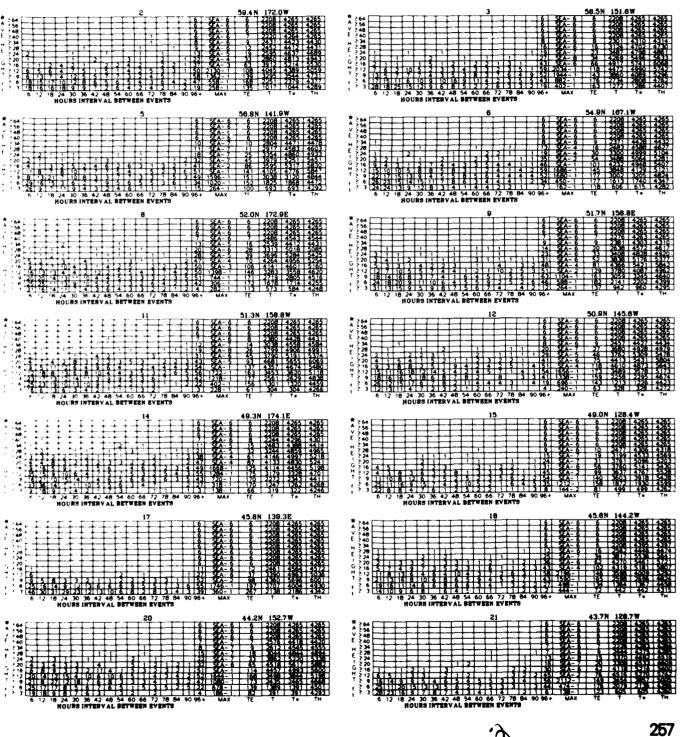
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#### WAVE HEIGHT INTERVALS

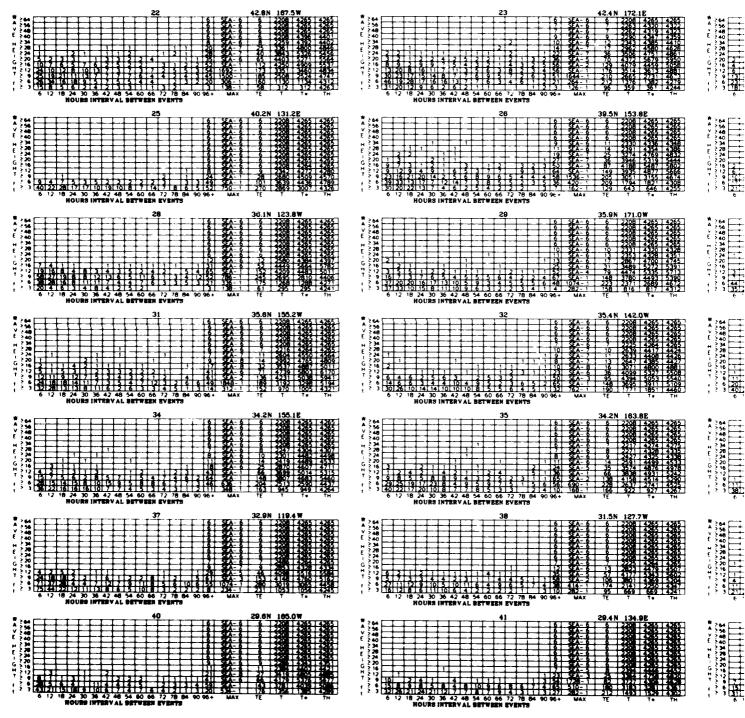


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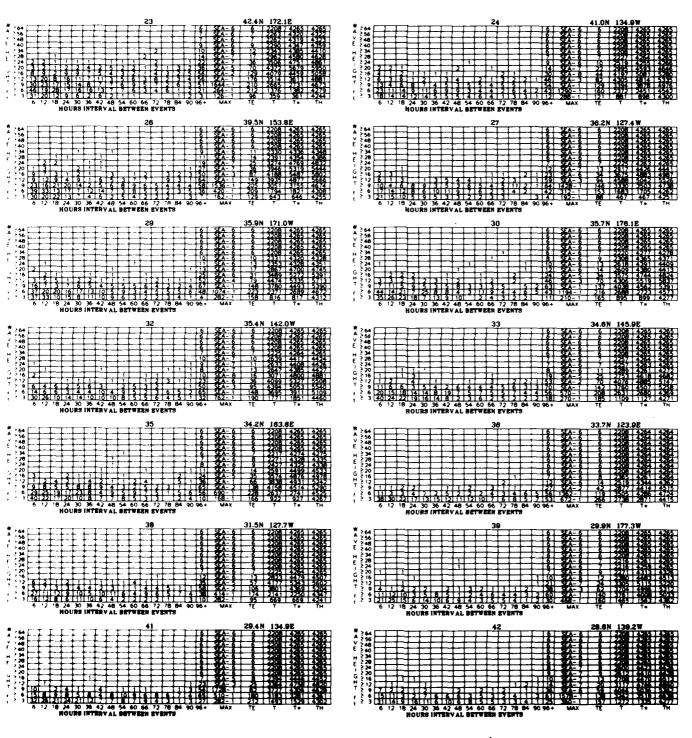


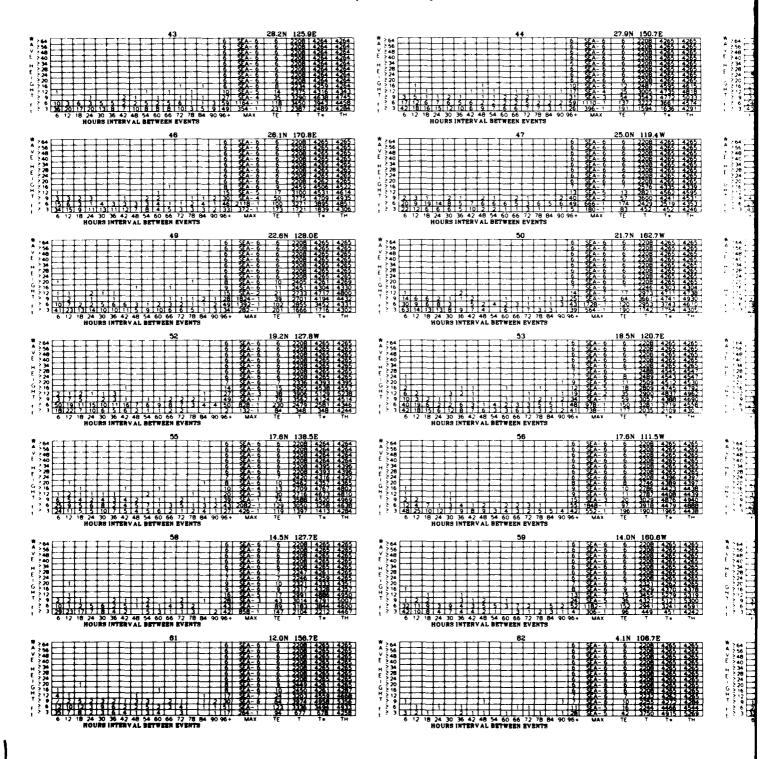
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#### WAVE HEIG



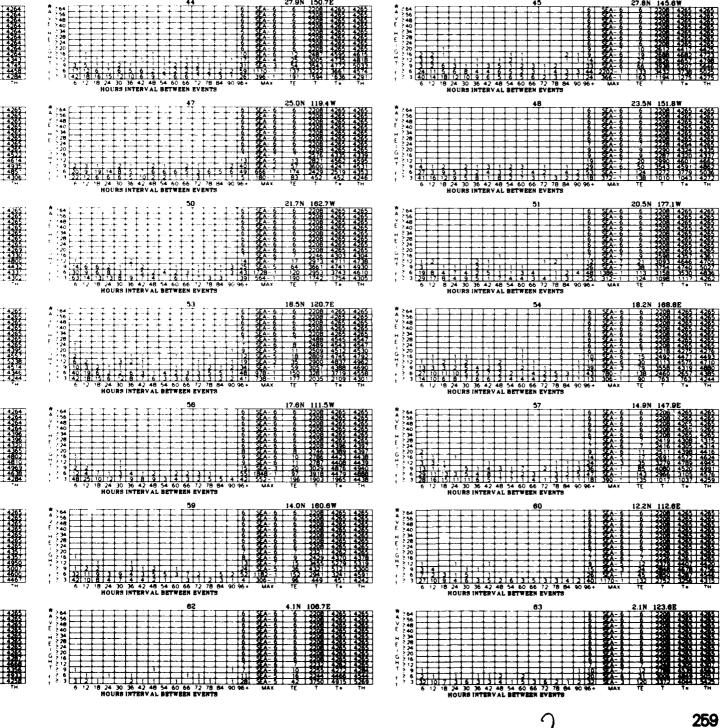
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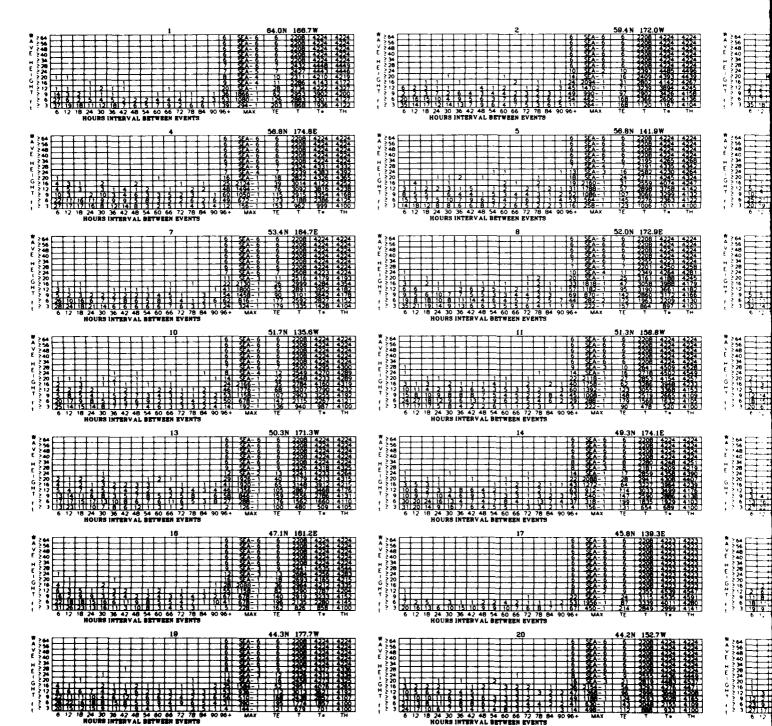


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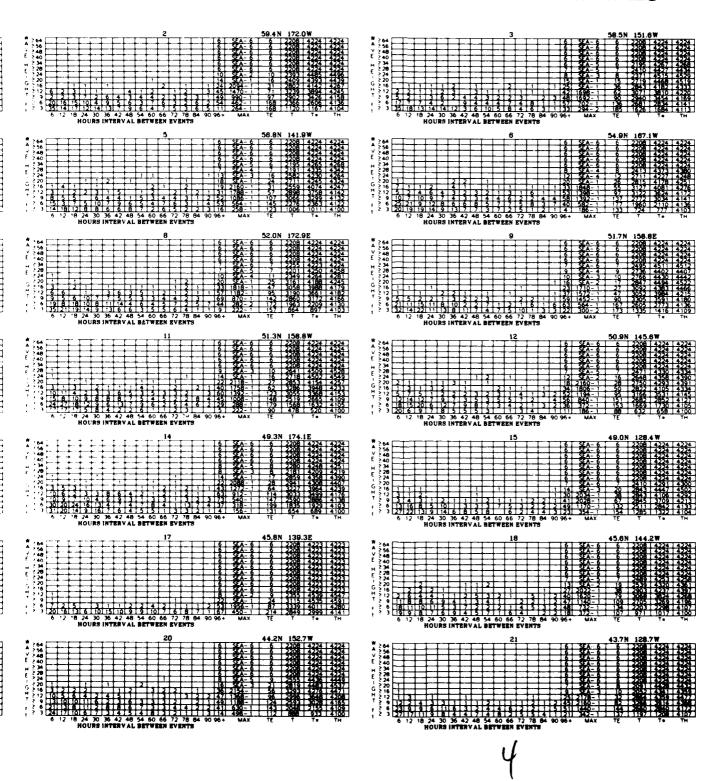
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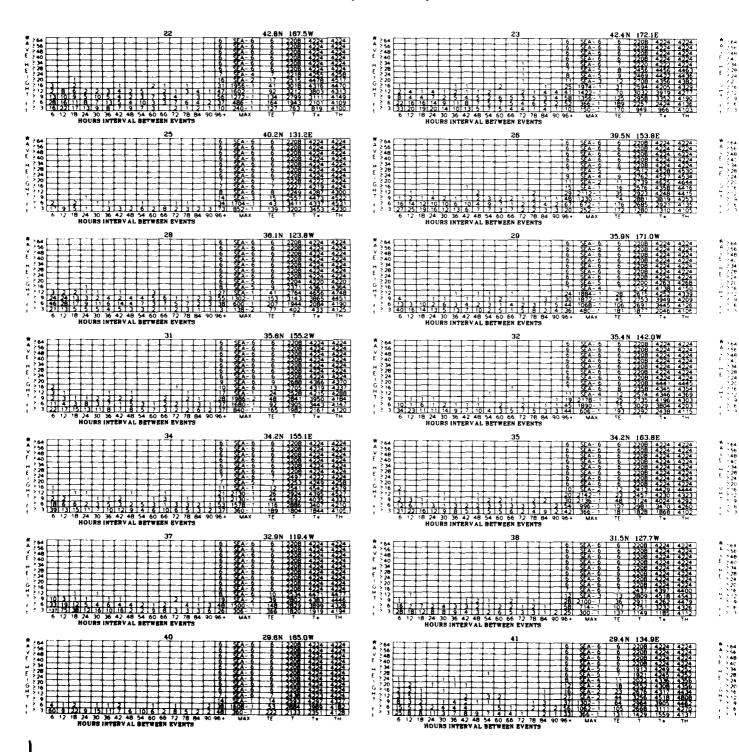


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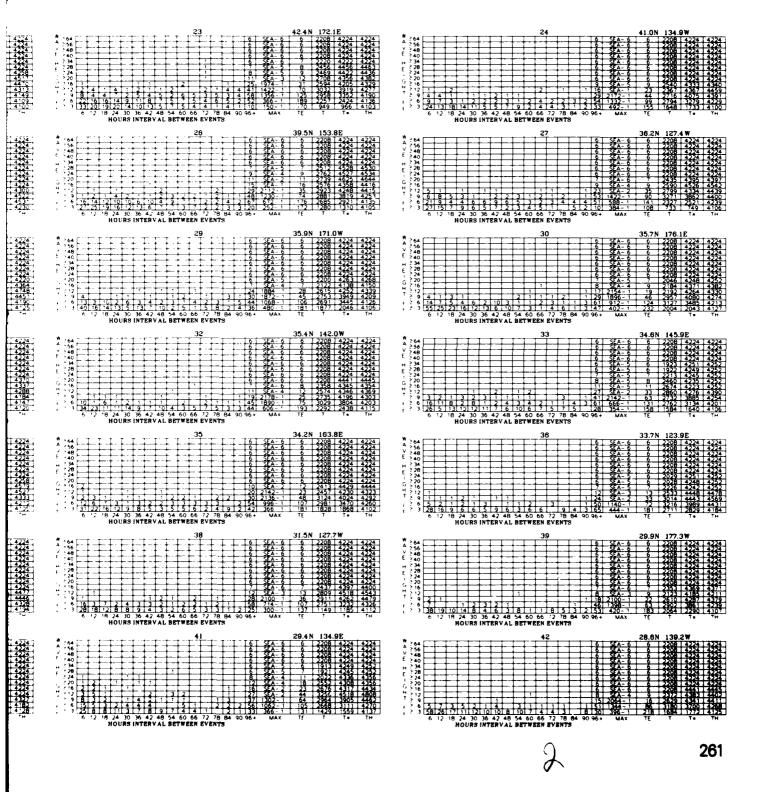
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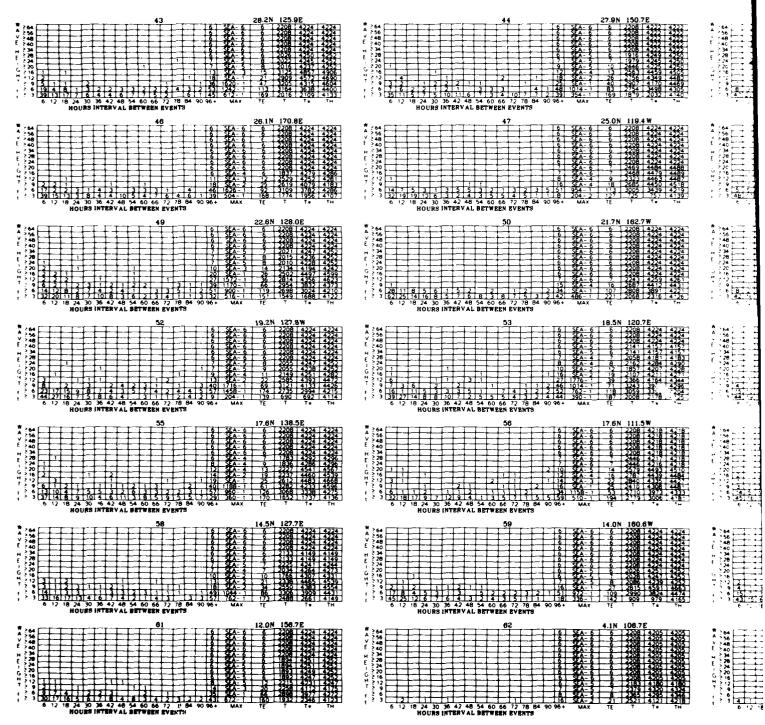
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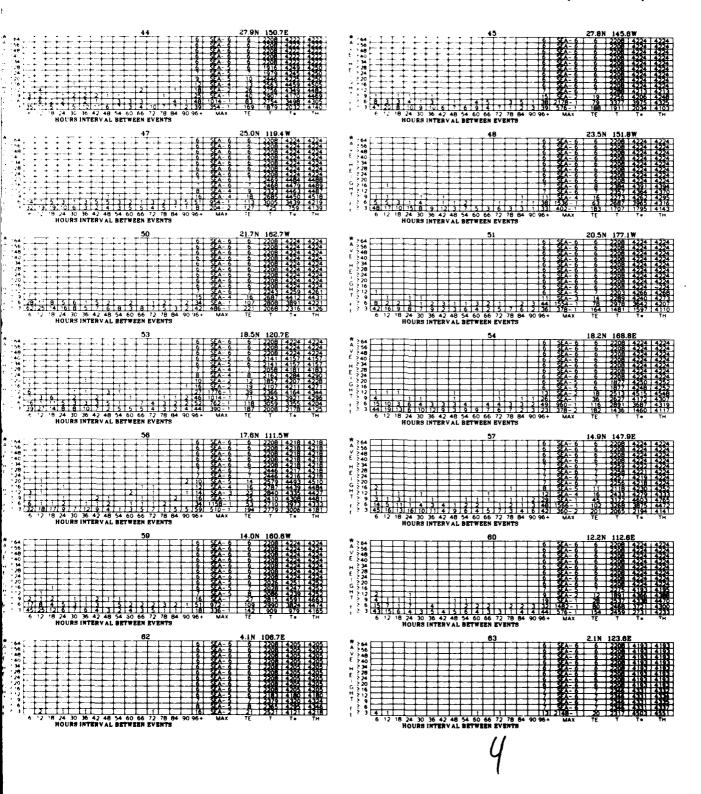
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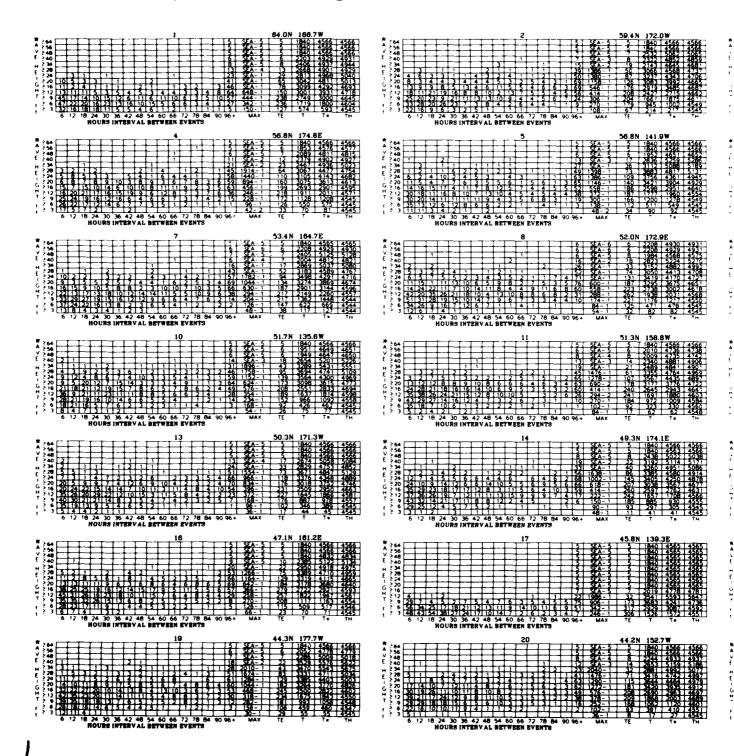
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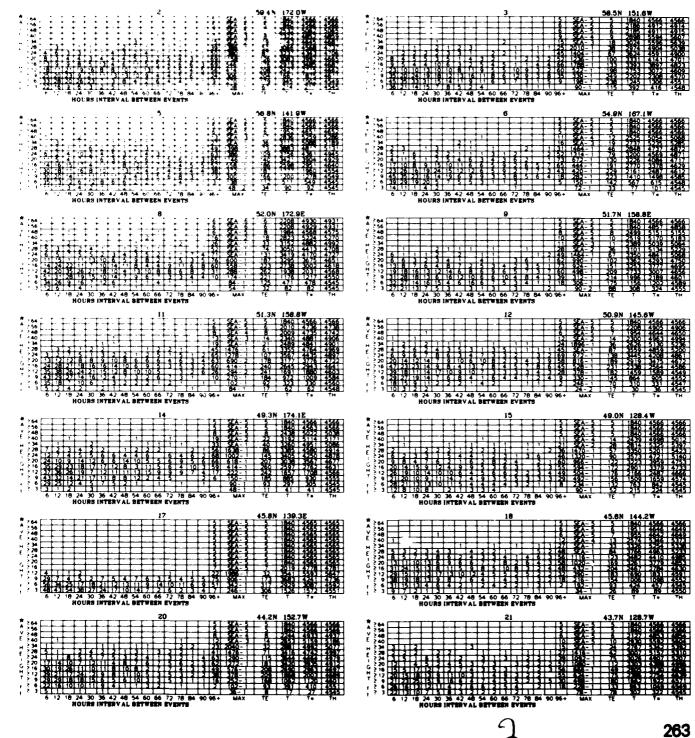




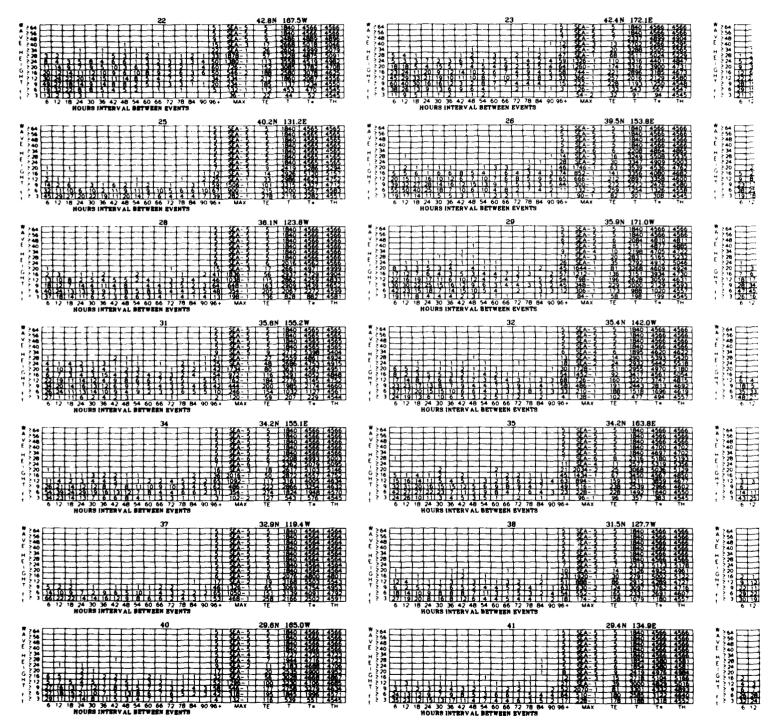
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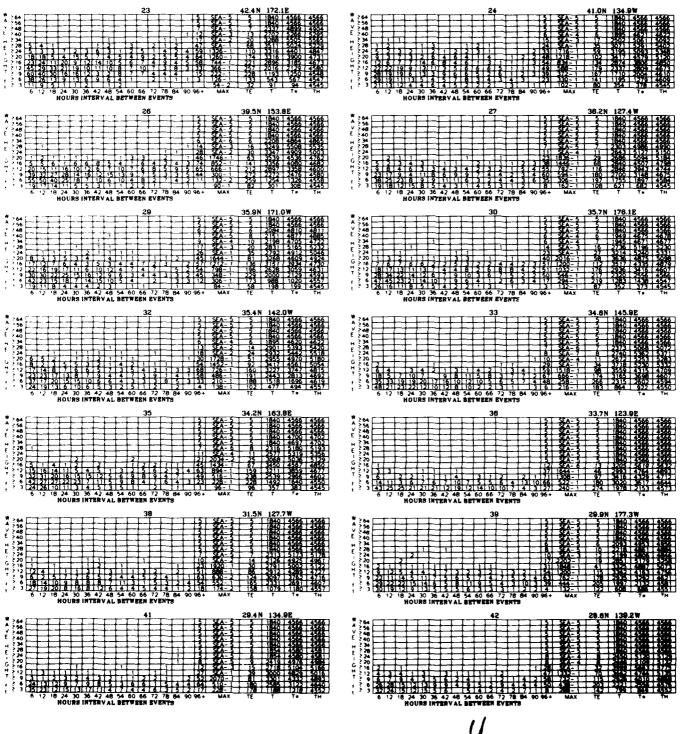


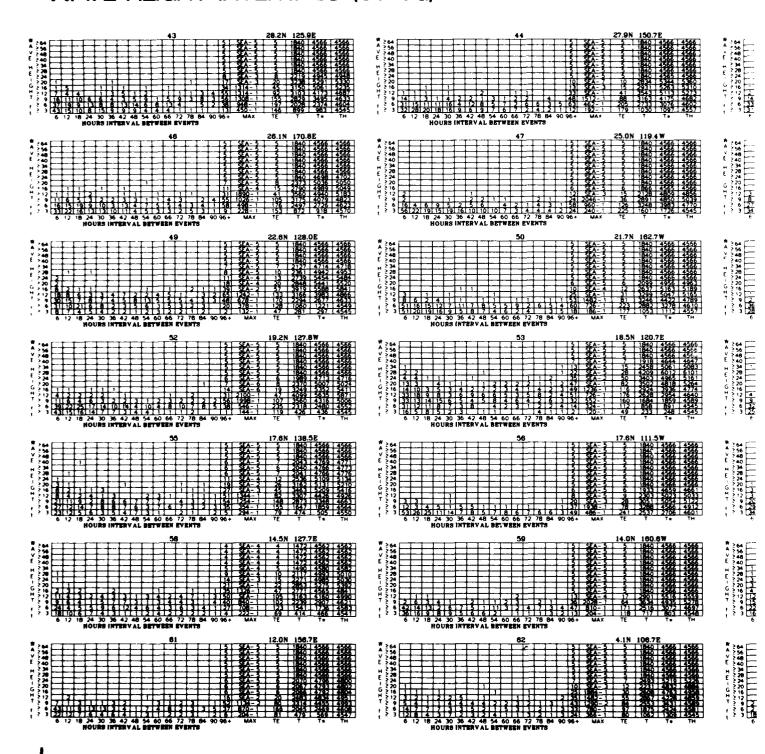
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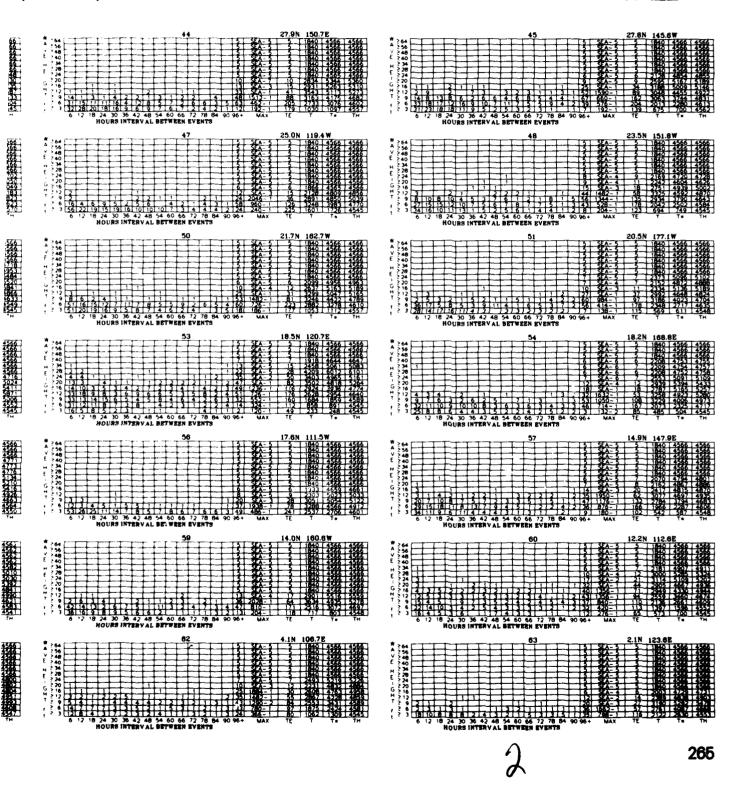




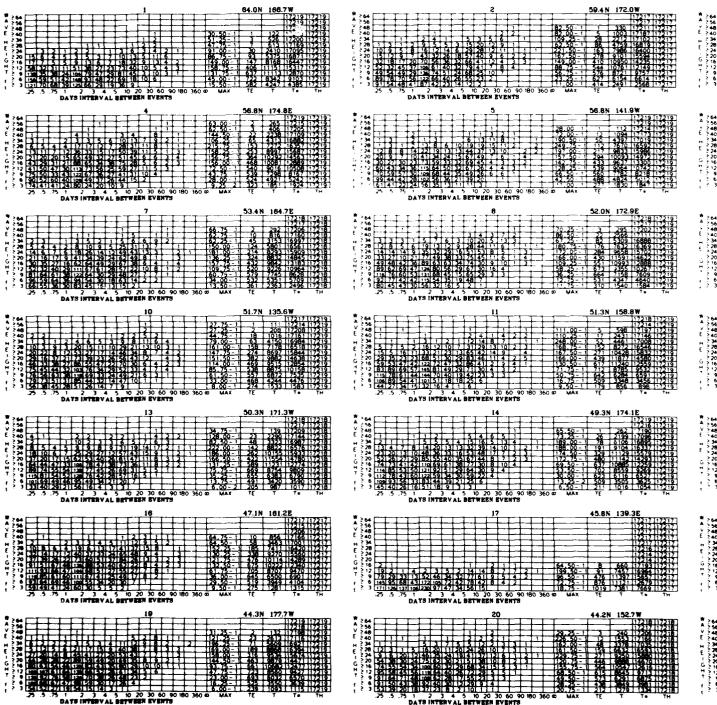


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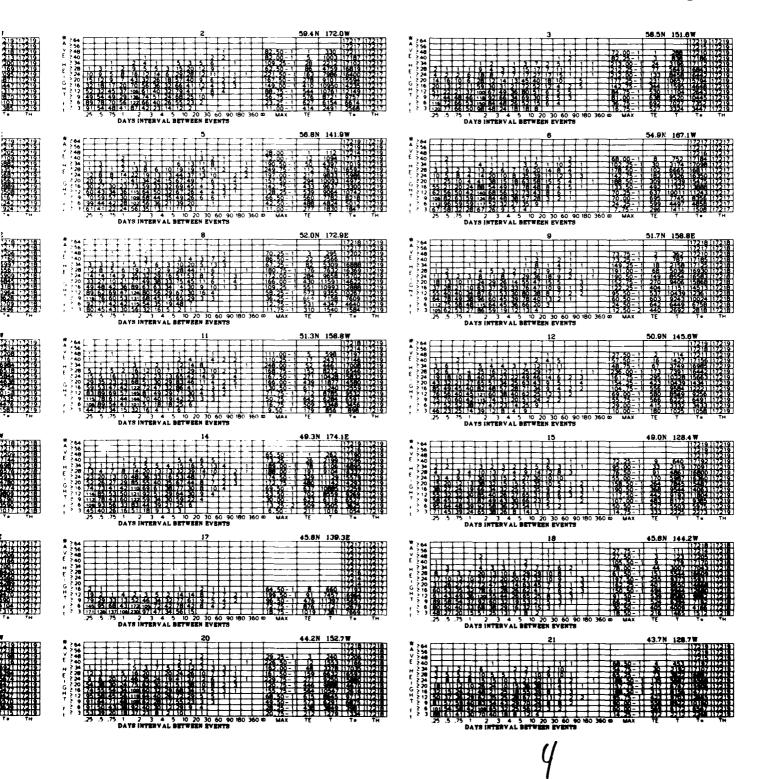
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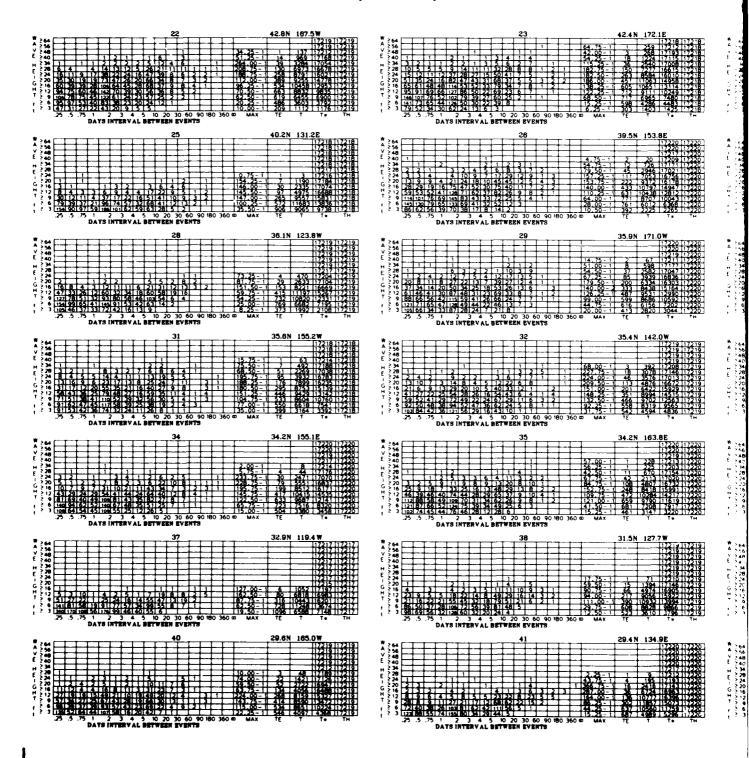


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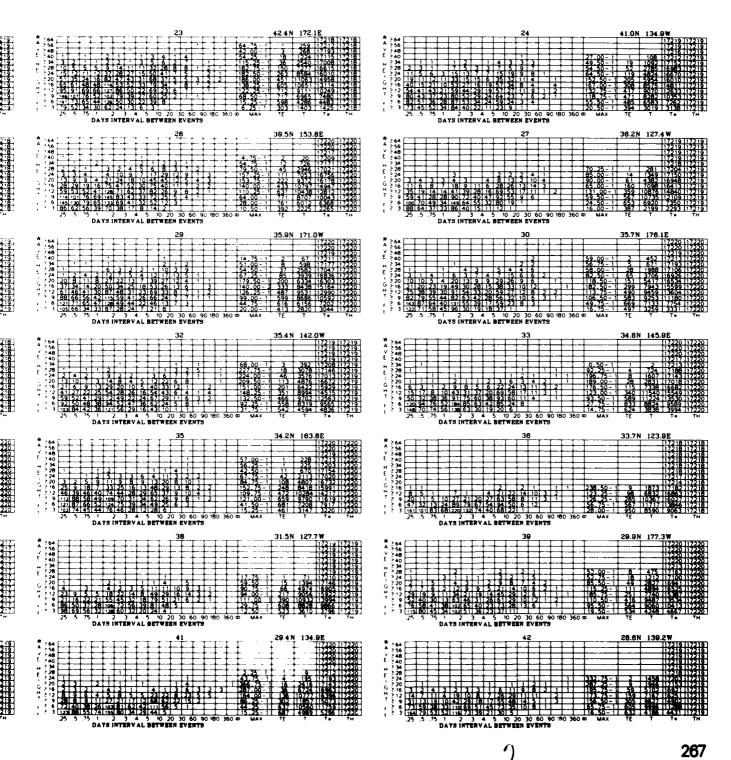
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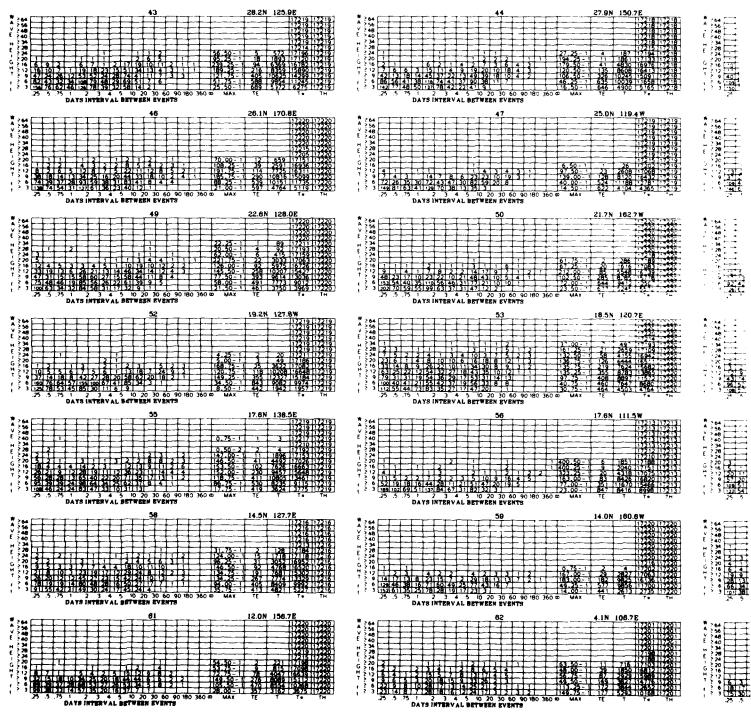
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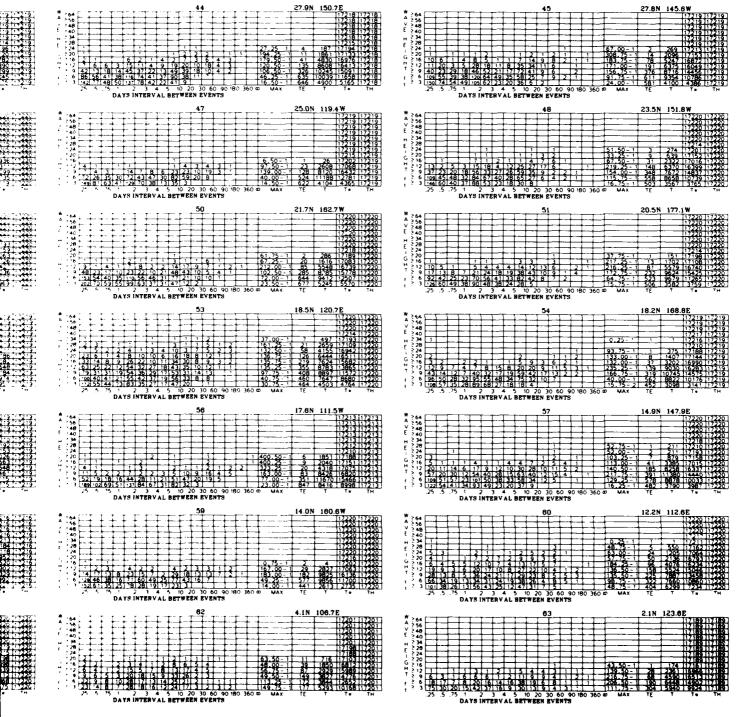
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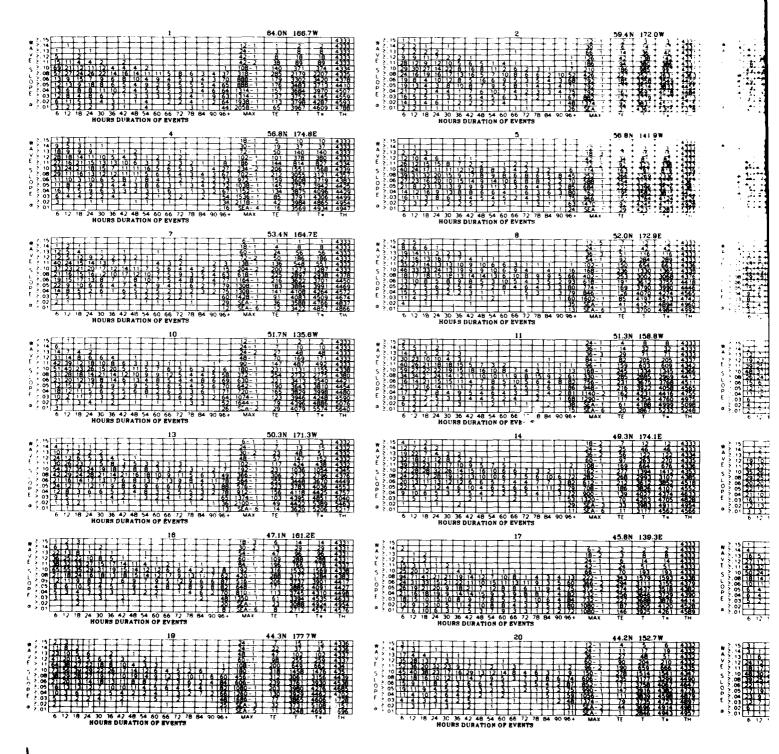
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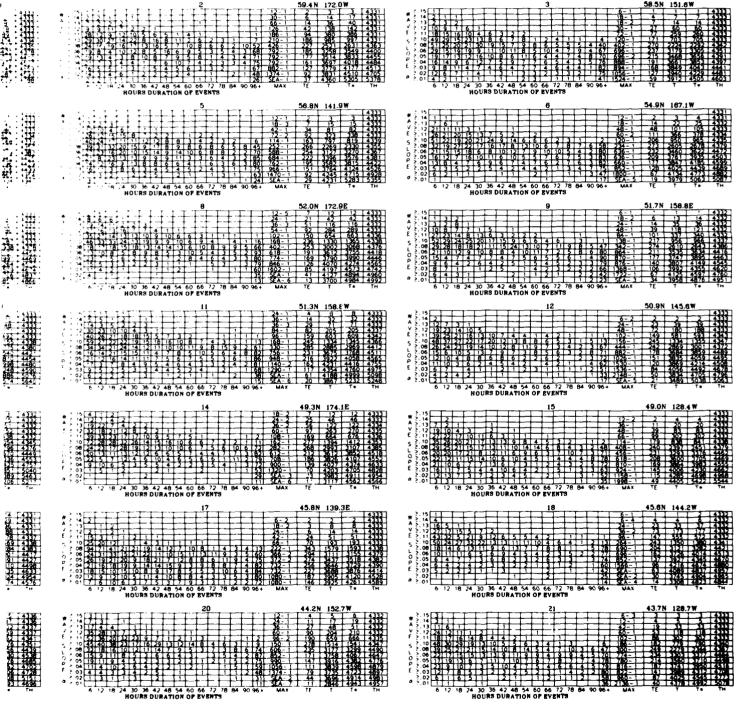


# WAVE SLOPE ( $\alpha$ ) DURATIONS



#### RATIONS

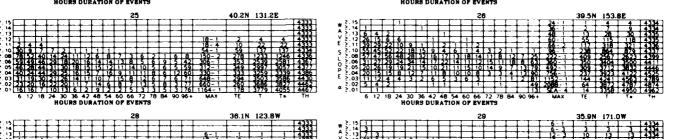
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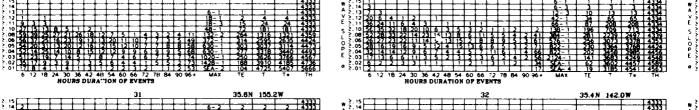


7

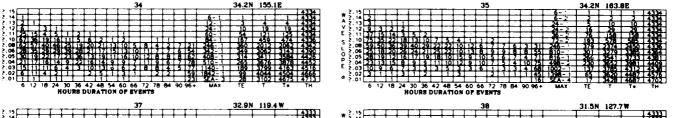
269

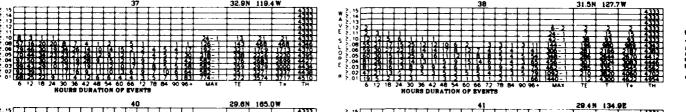
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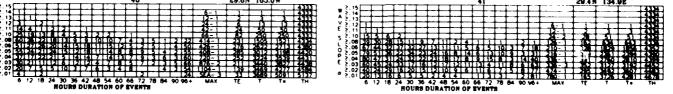




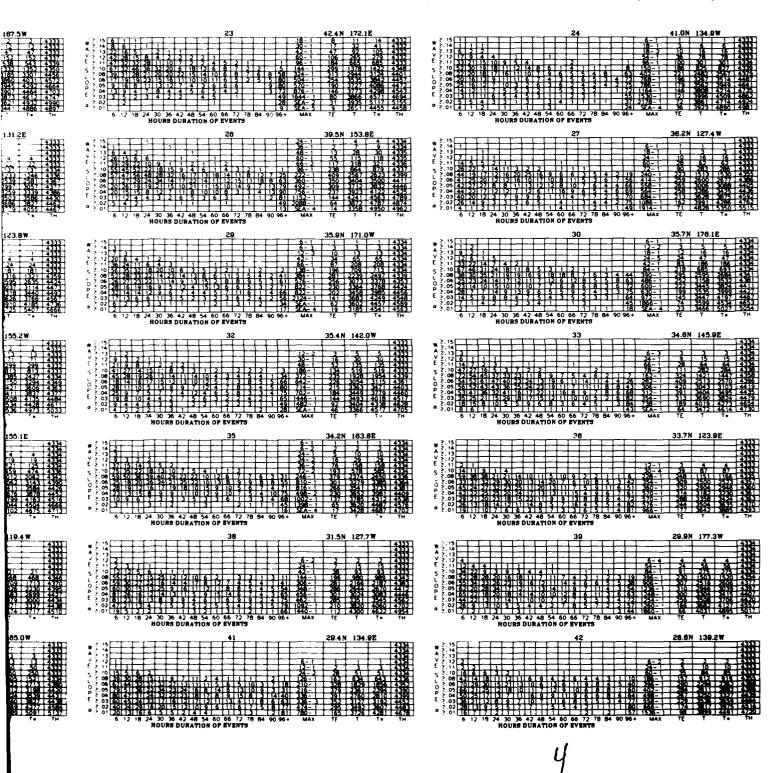




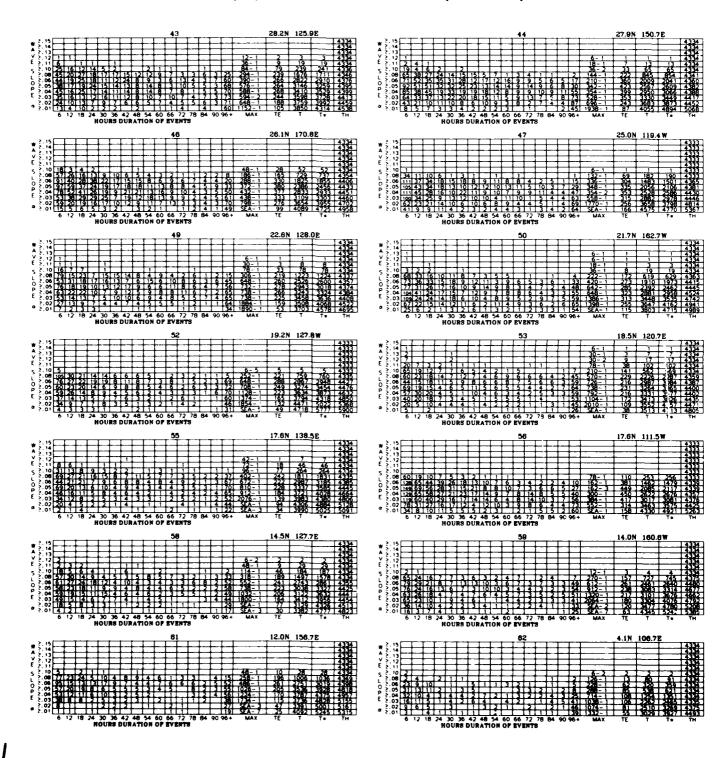




# WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)

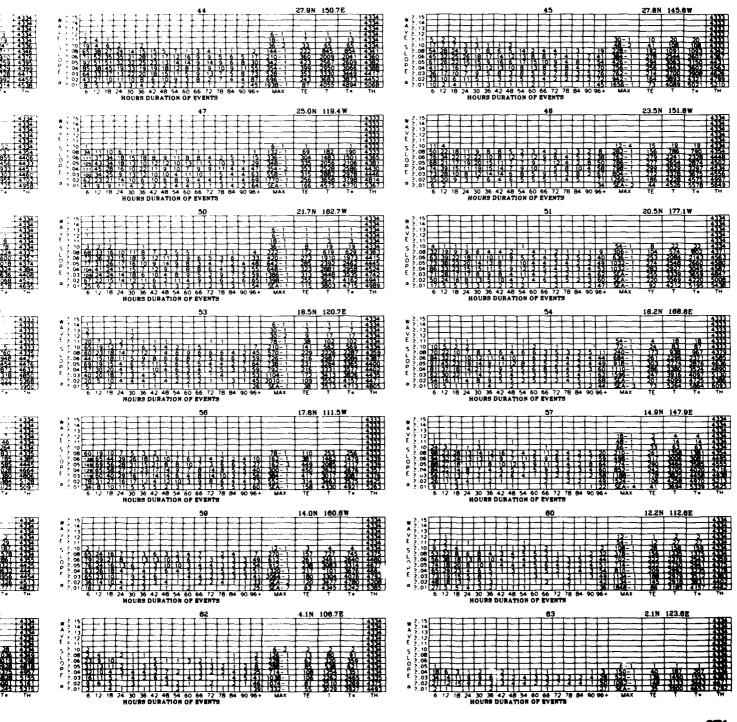


# WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)



# RATIONS (Cont'd)

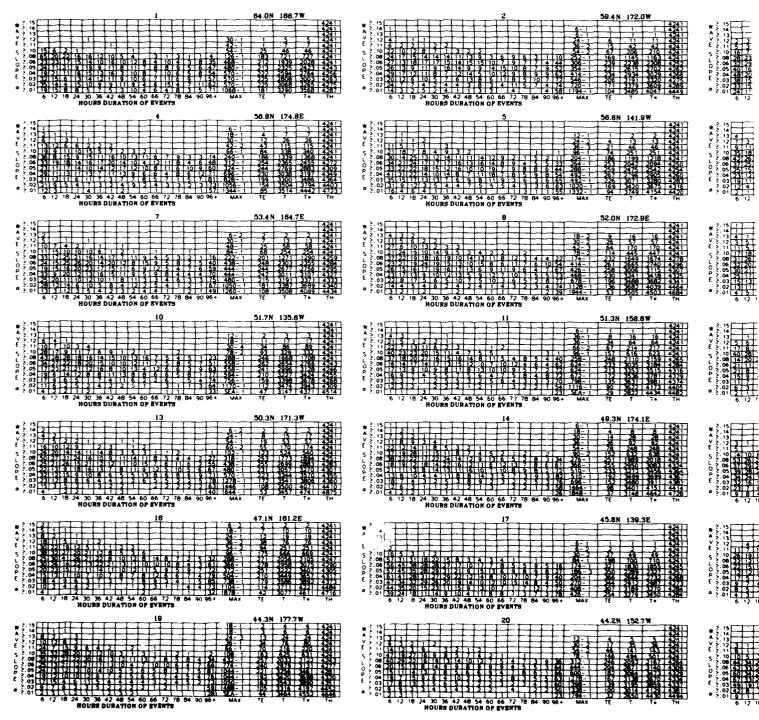
# **WINTER**



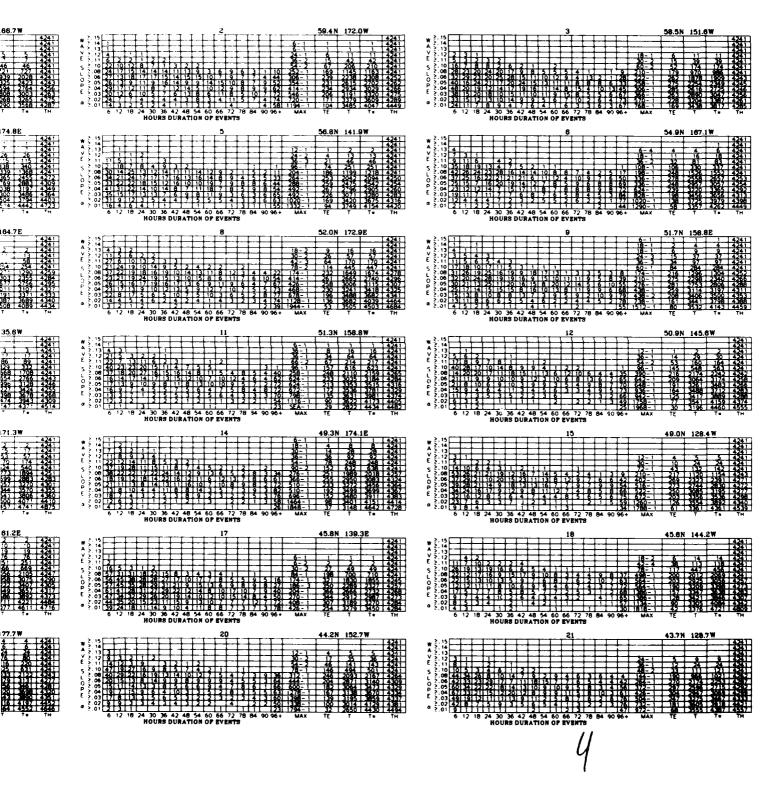
271

# **SPRING**

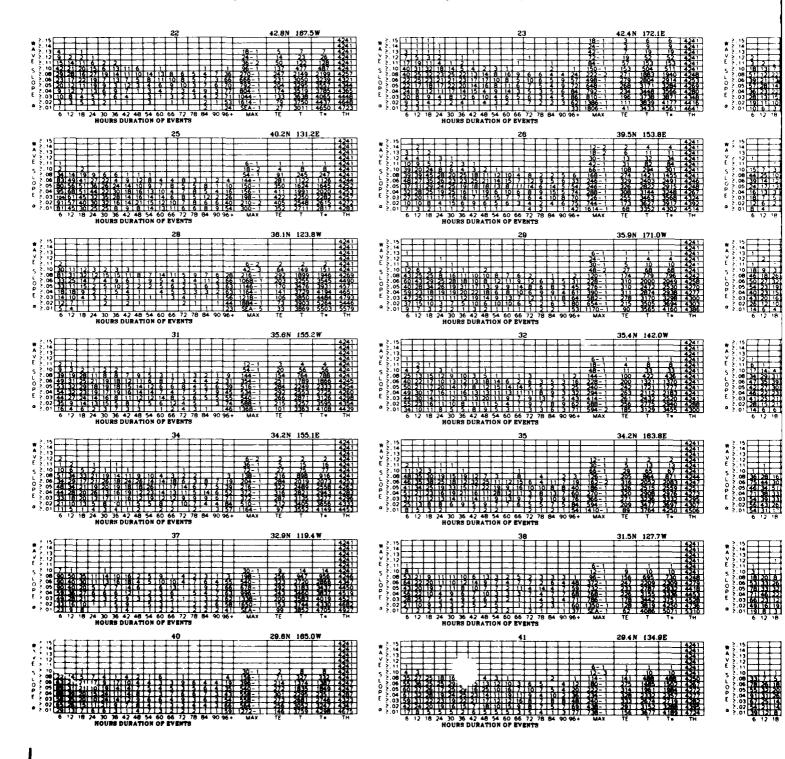
# WAVE SLOI



# WAVE SLOPE ( $\alpha$ ) DURATIONS

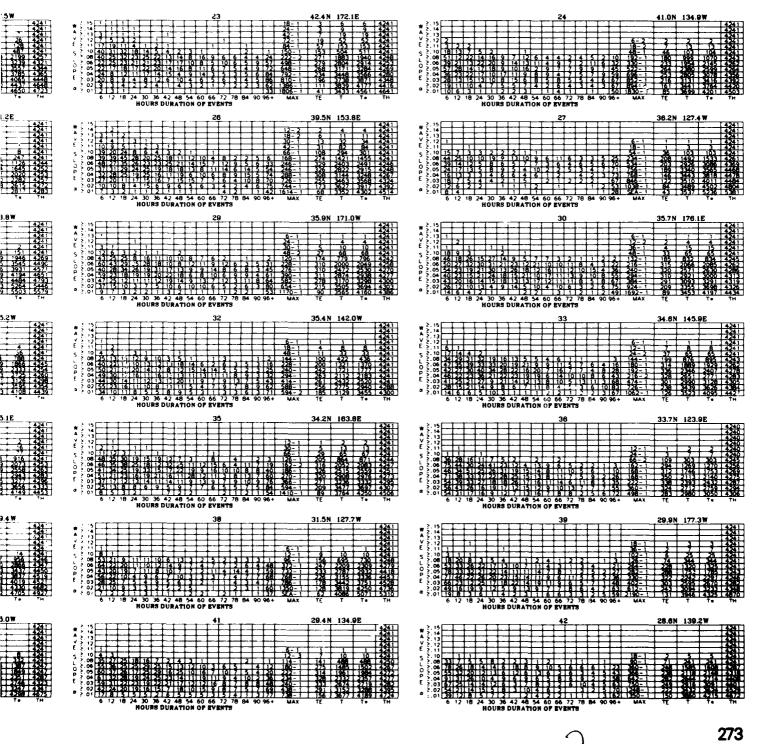


# WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)



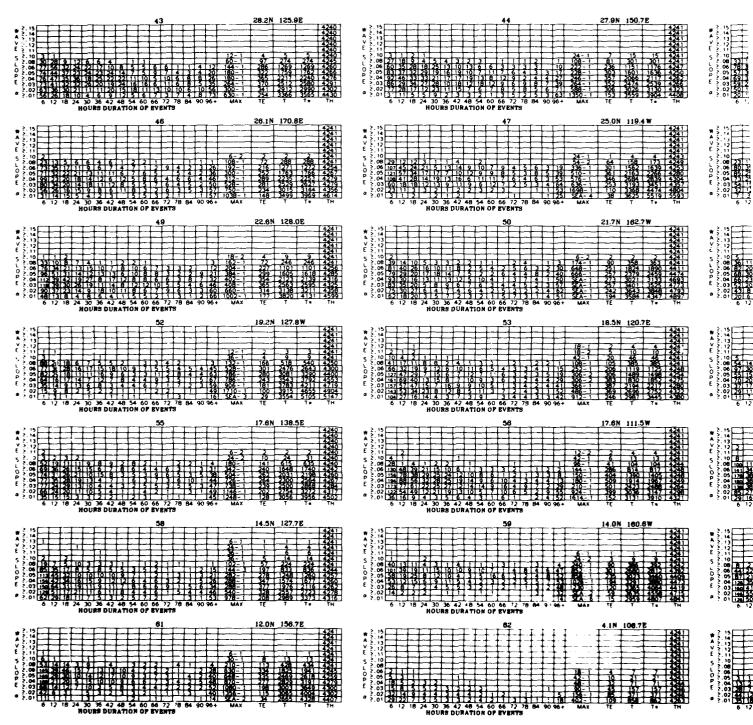
# JRATIONS (Cont'd)

# **SPRING**

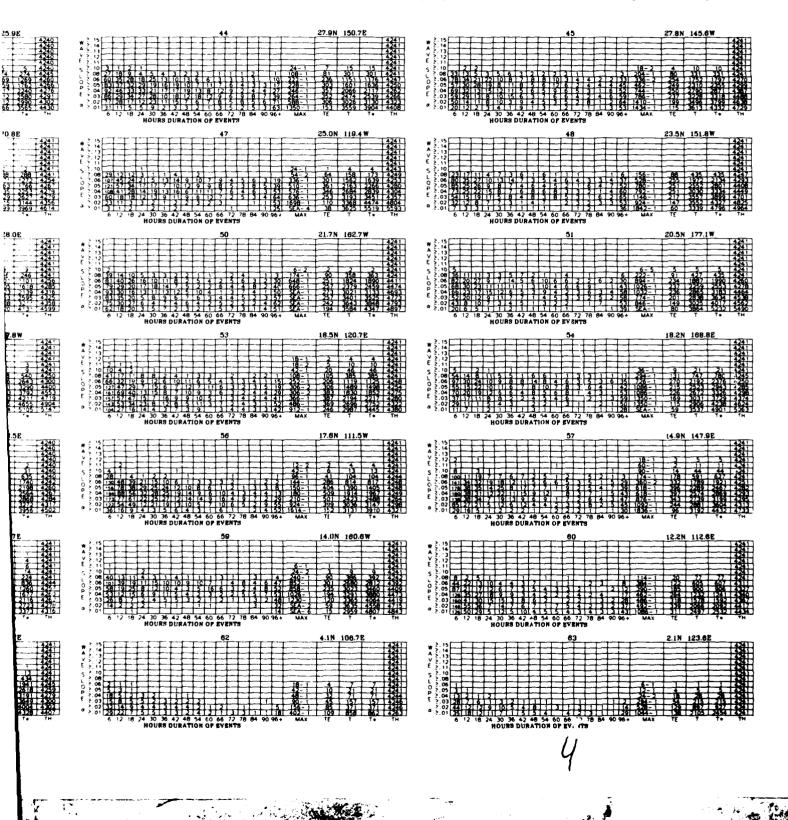


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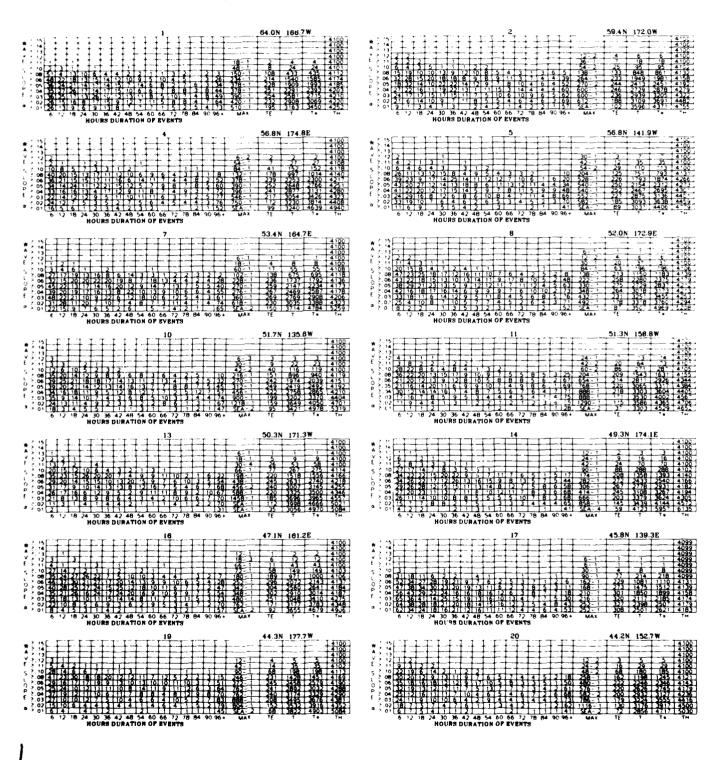
# WAVE SLOPE $(\alpha)$



# WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)

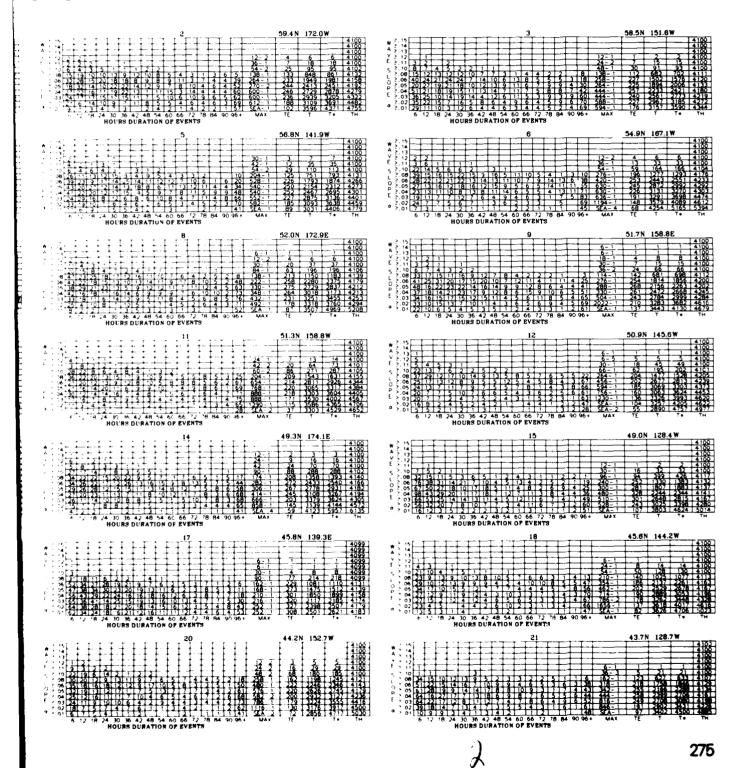


# WAVE SLOPE ( $\alpha$ ) DURATIONS



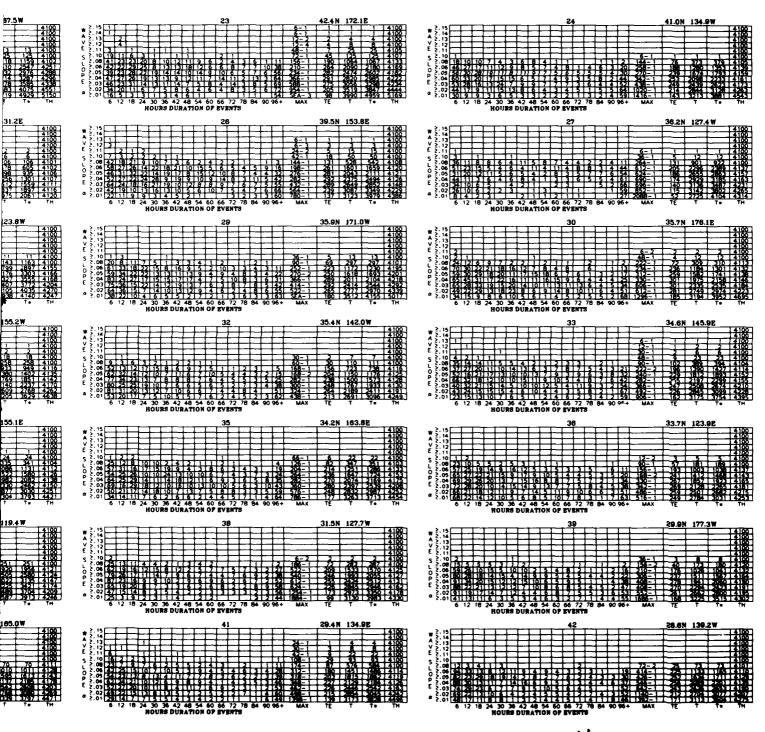
# TIONS

# SUMMER

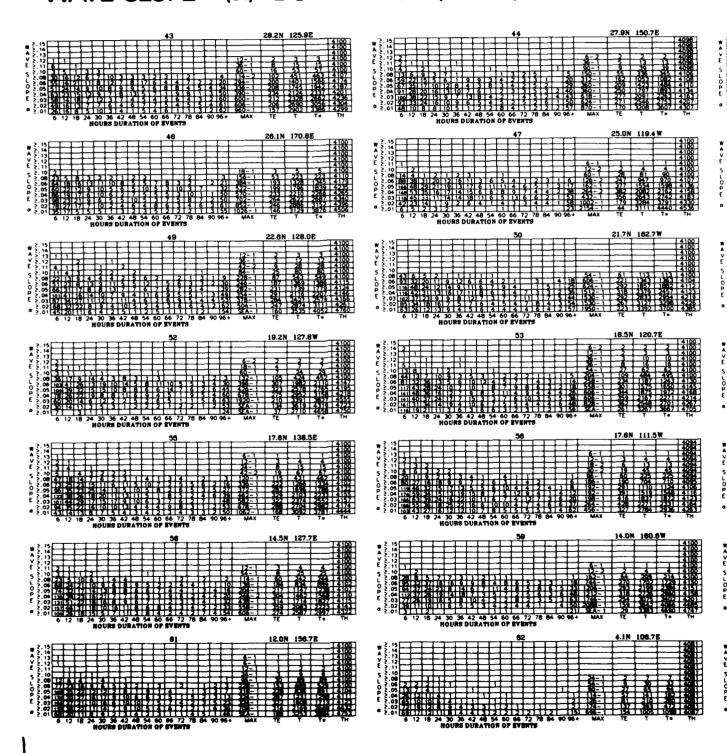


## **SUMMER** WAVE SLOPE $(\alpha)$

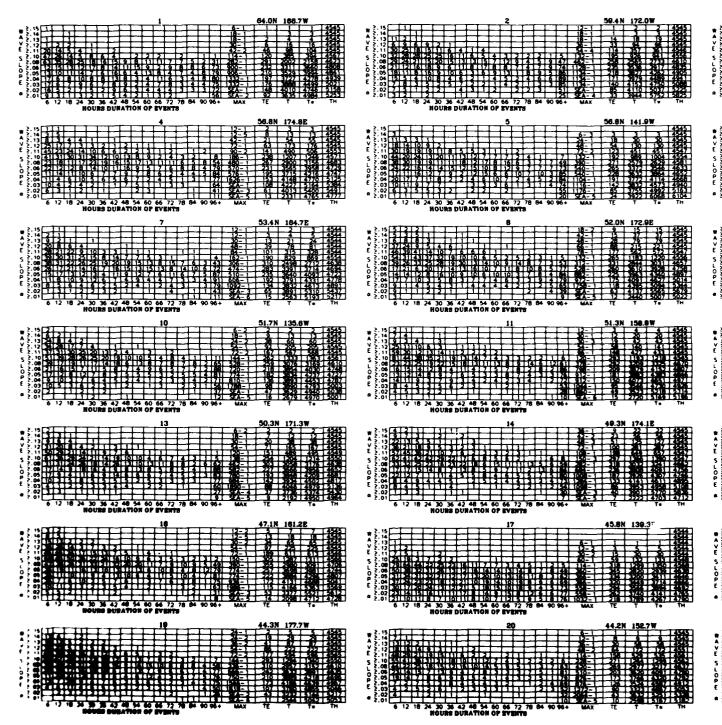
### WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)



### WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)

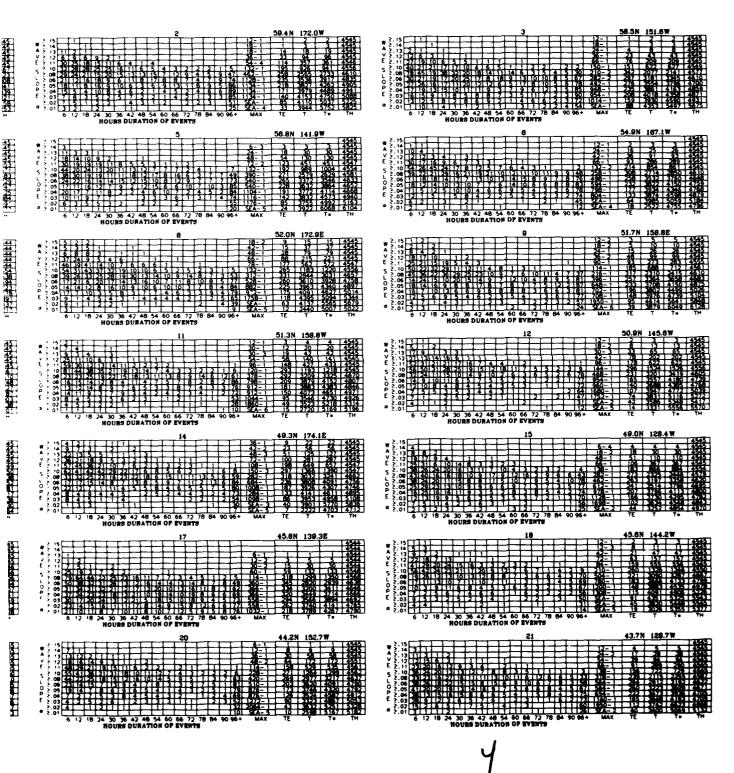


### **SUMMER** ATIONS (Cont'd)

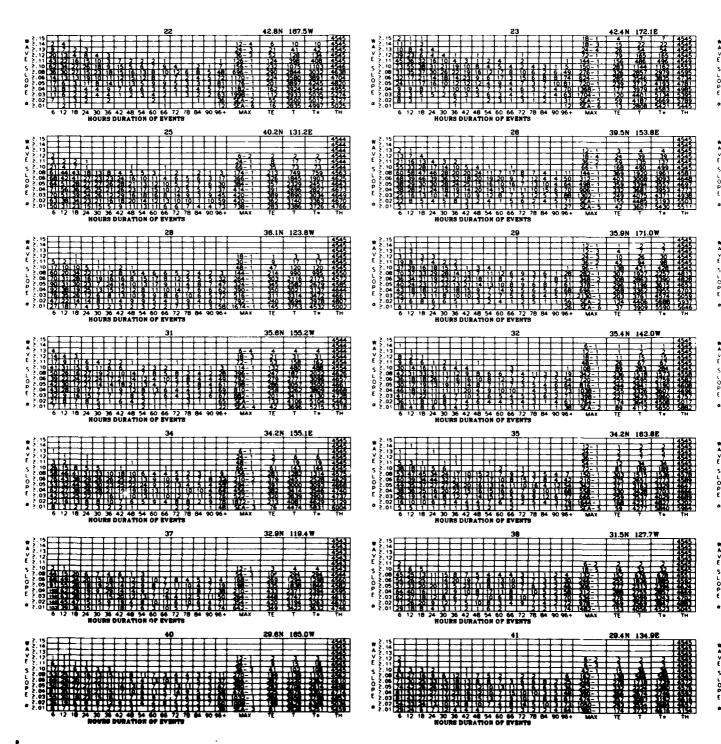


27

### WAVE SLOPE ( $\alpha$ ) DURATIONS



### WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)

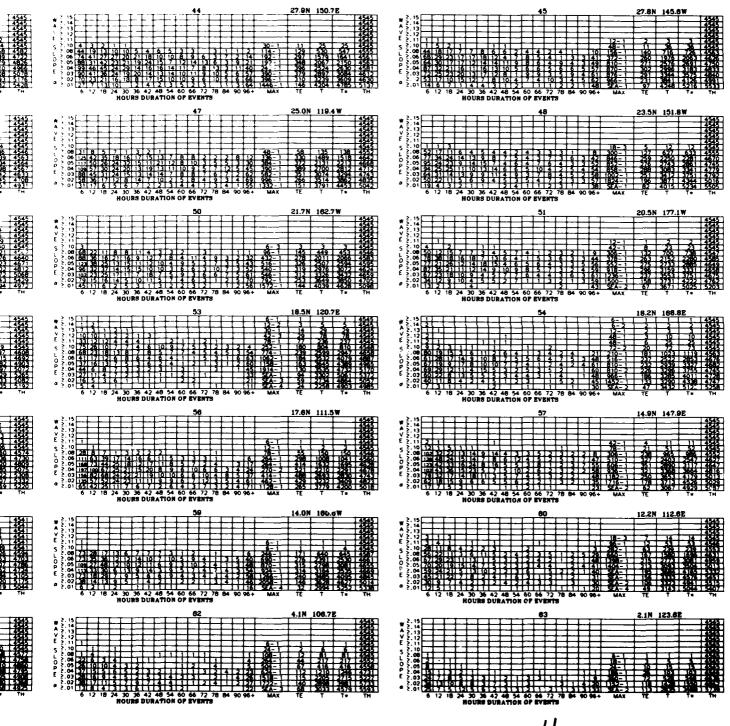


## ATIONS (Cont'd) FALL

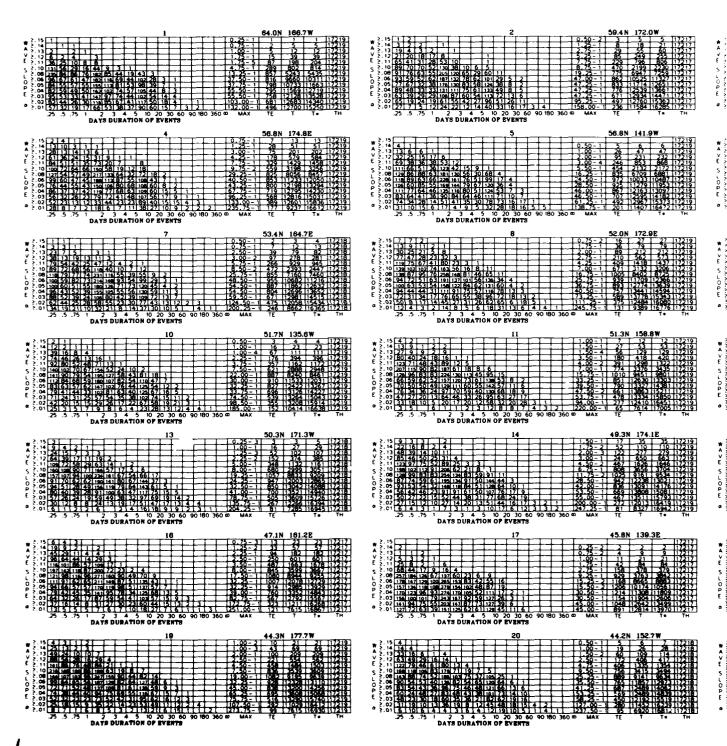
279

### WAVE SLOPE **FALL** $(\alpha)$

### WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)



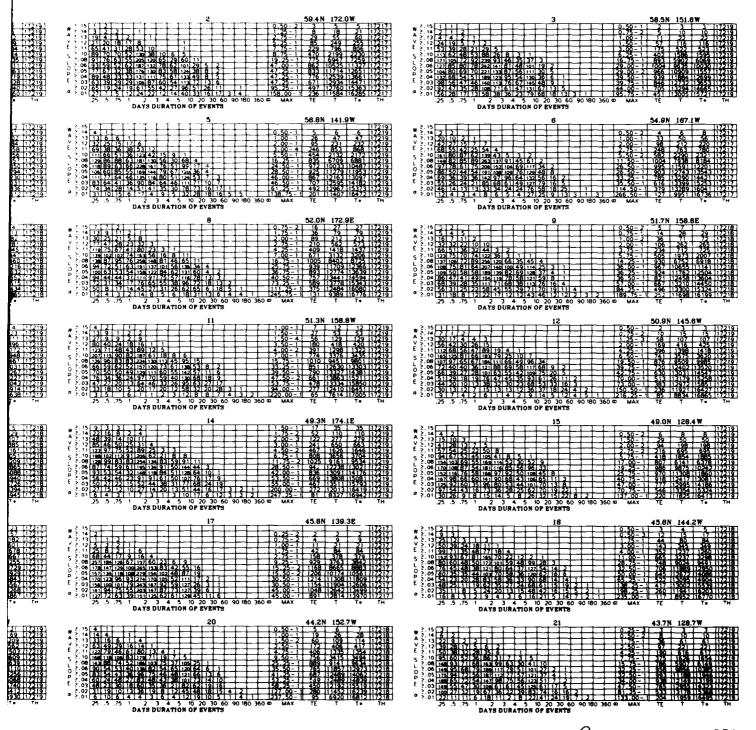
### WAVE SLOPE ( $\alpha$ ) DURATIONS



### PATIONS

34. 74.

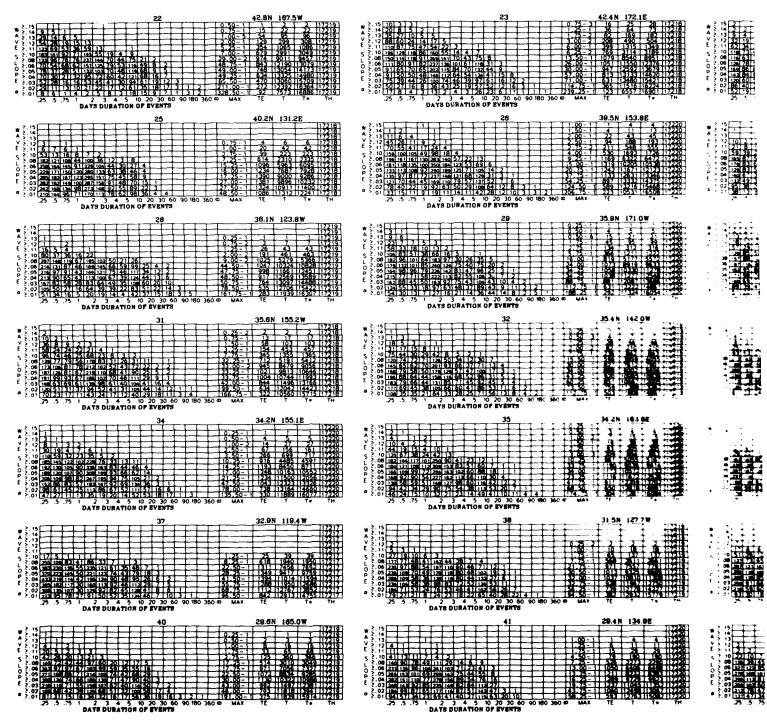
### **ANNUAL**



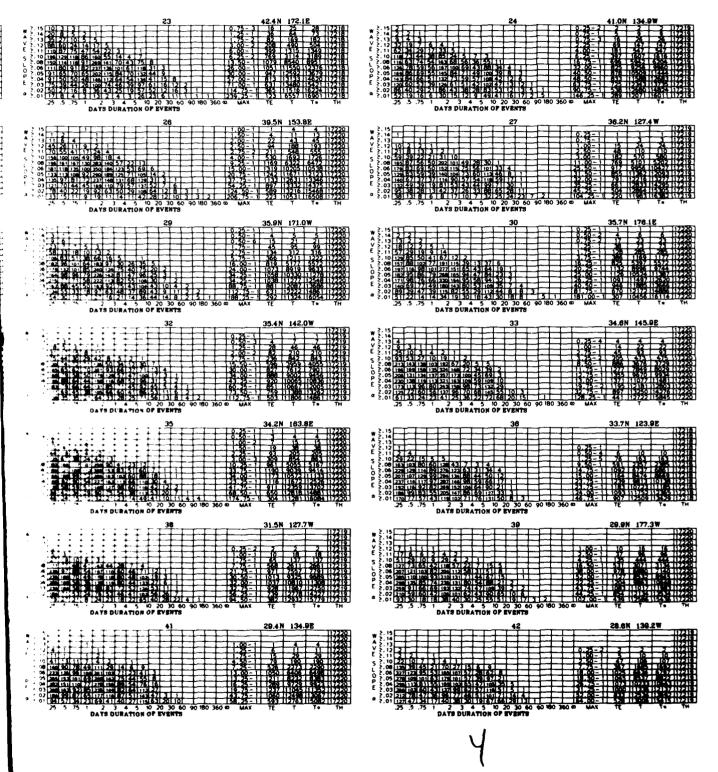
 $\mathcal{J}$ 

### ANNUAL

### WAVE SLOPE ( $\alpha$ ) [

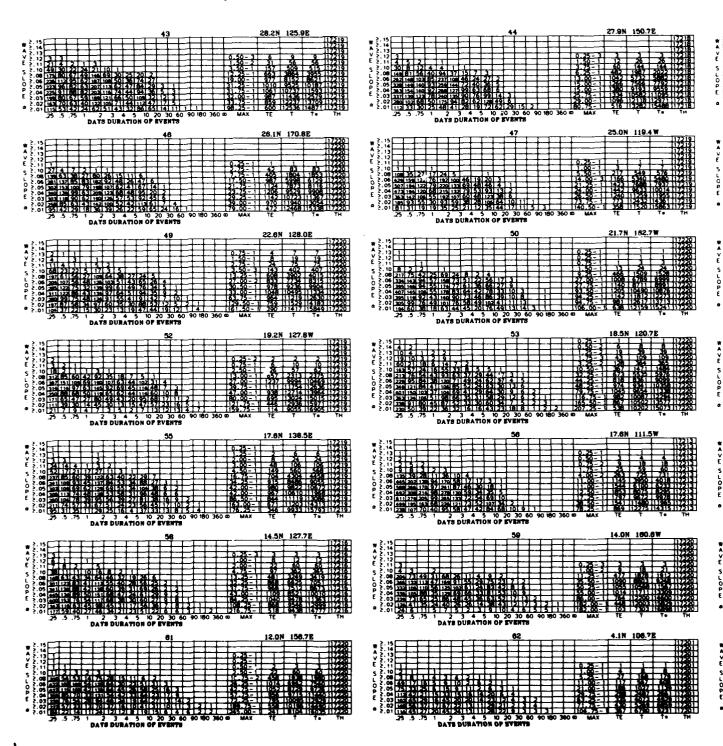


### WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)



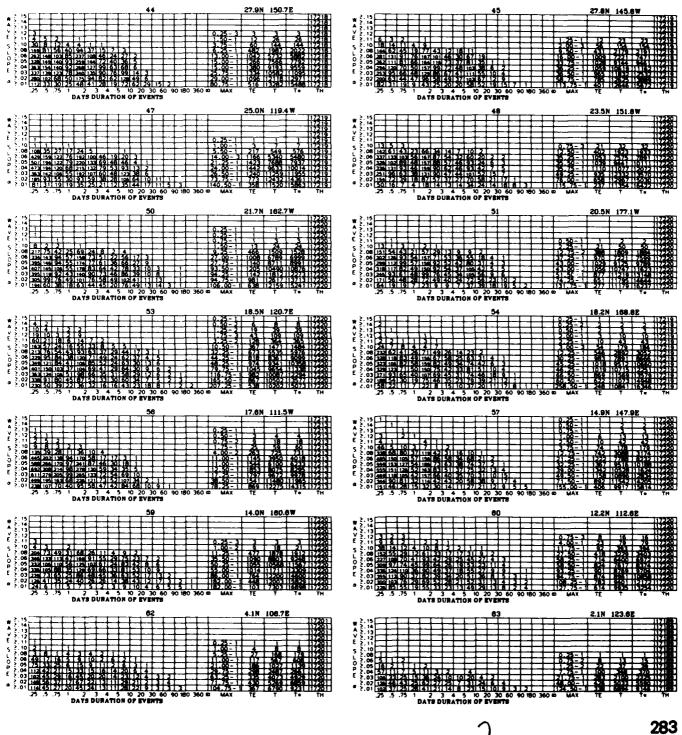


### WAVE SLOPE ( $\alpha$ ) DURATIONS (Cont'd)

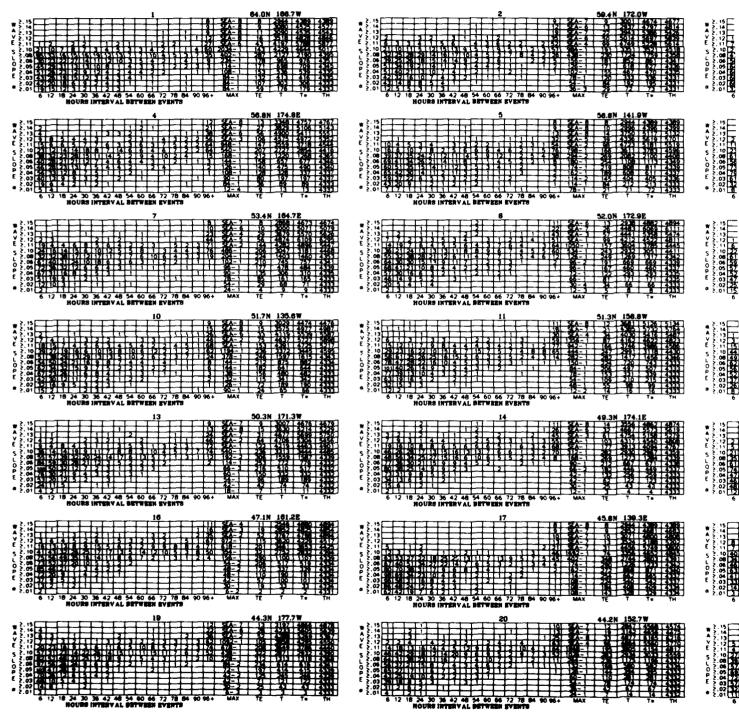


### TIONS (Cont'd)

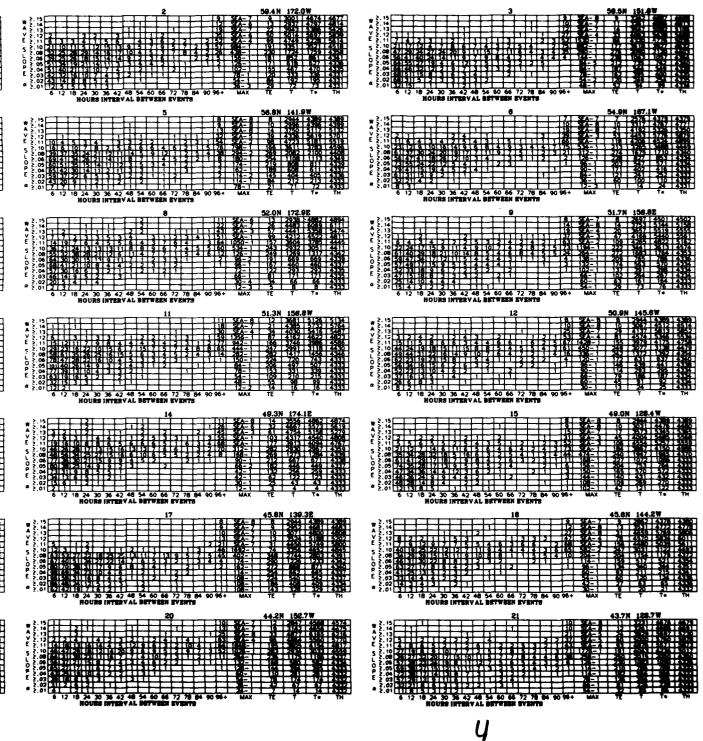
### **ANNUAL**



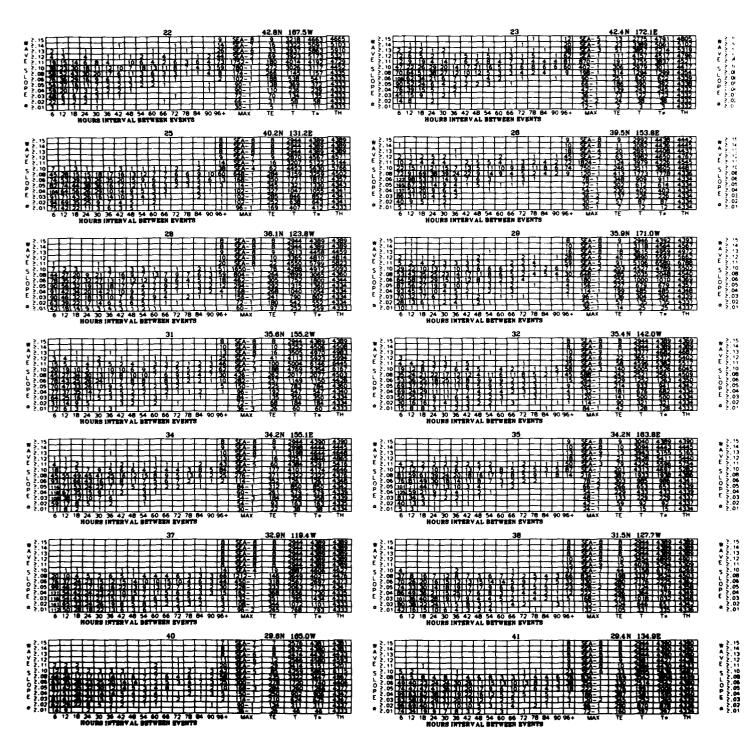
### WAVE SL



### WAVE SLOPE ( $\alpha$ ) INTERVALS



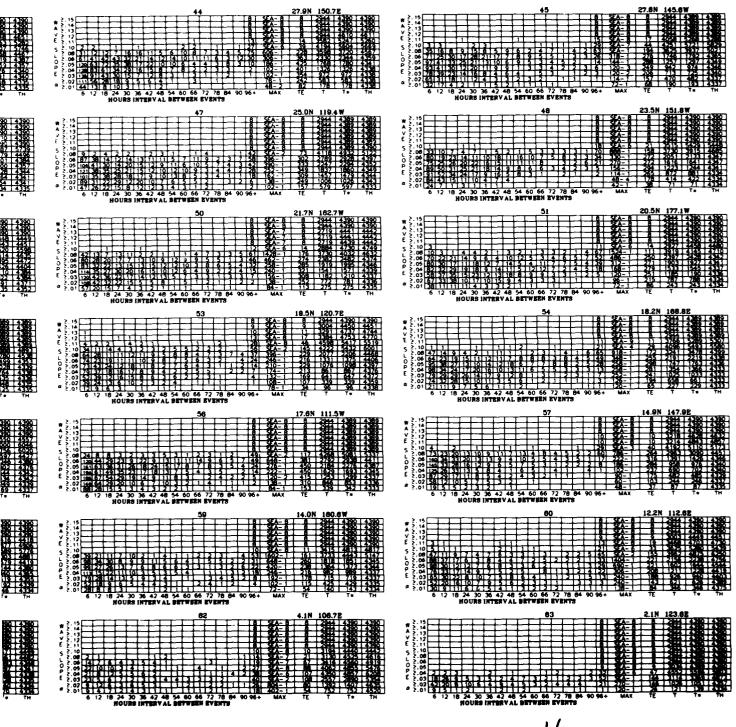
### WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)



### VALS (Cont'd) WINTER 285

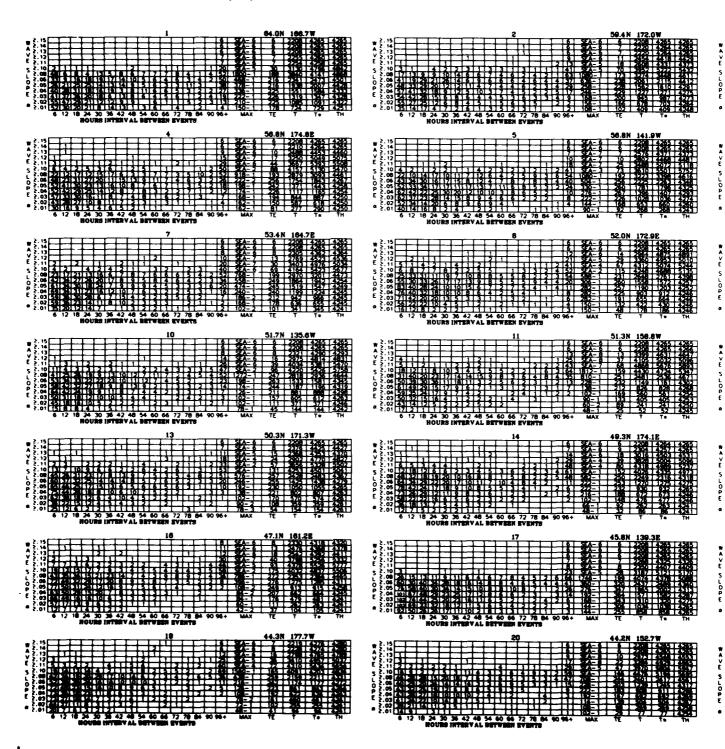
### WAVE SLOPE WINTER $(\alpha)$

### WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)



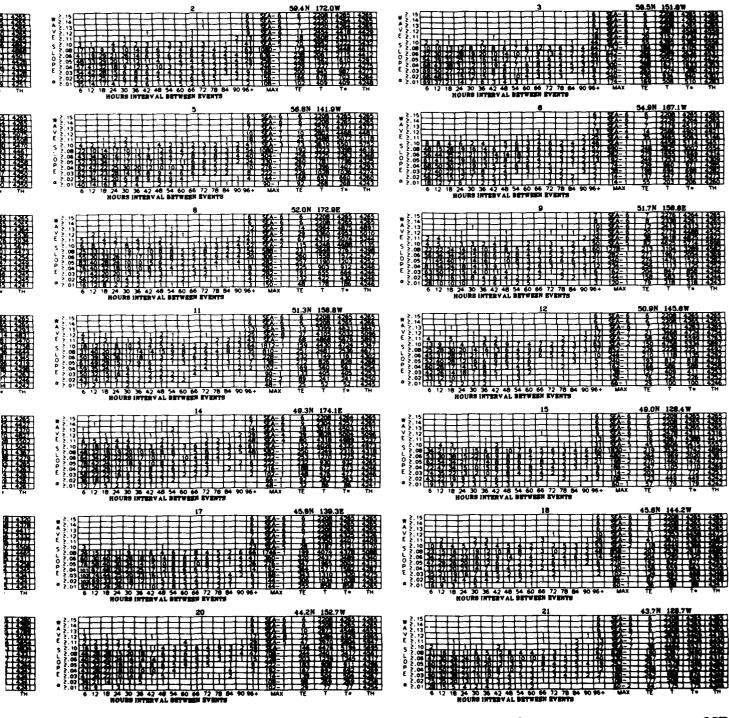


### WAVE SLOPE ( $\alpha$ ) INTERVALS



### RVALS

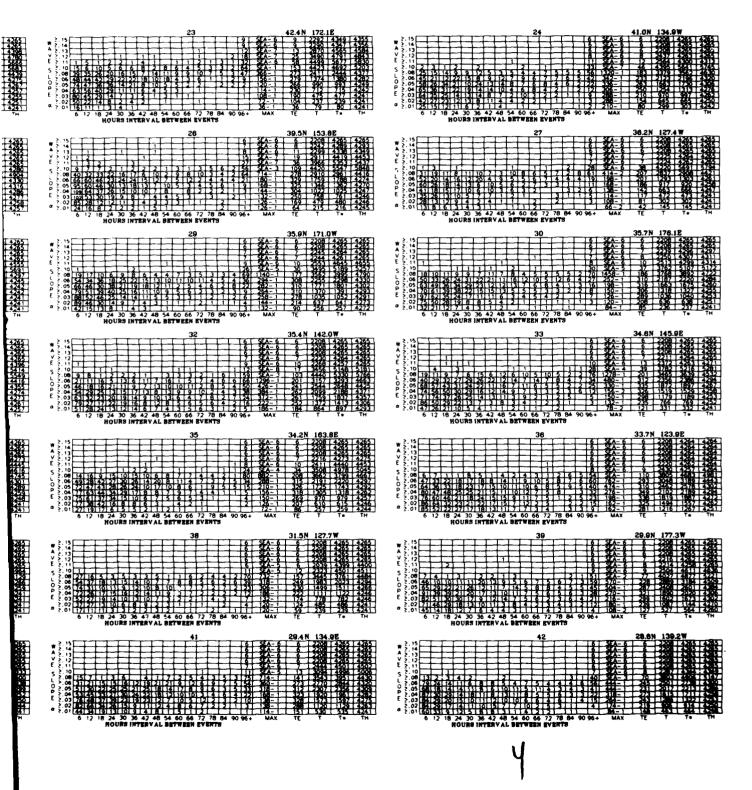
### **SPRING**



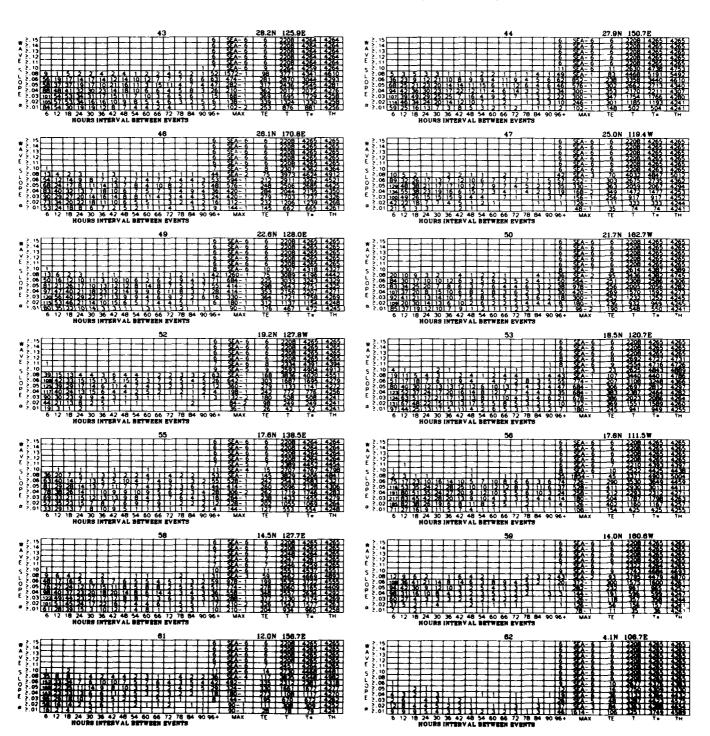
287

## **SPRING** WAVE SLOPE

### WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)



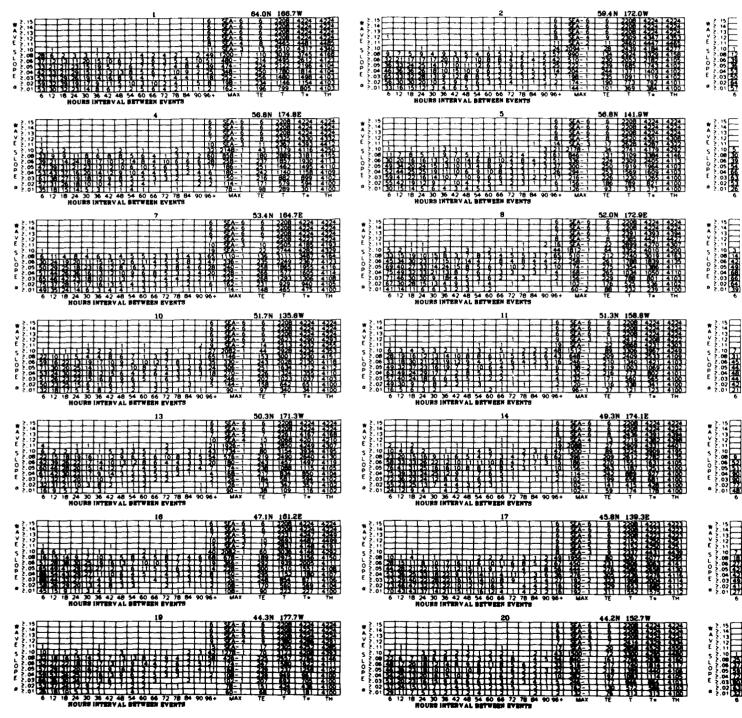
### WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)



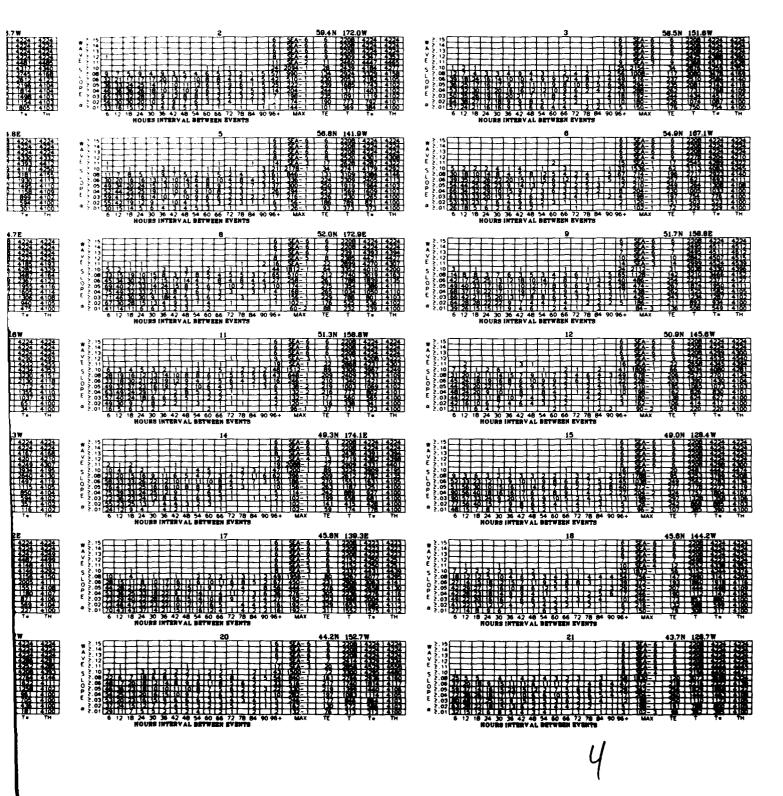
# VALS (Cont'd) **SPRING**

### **SUMMER**

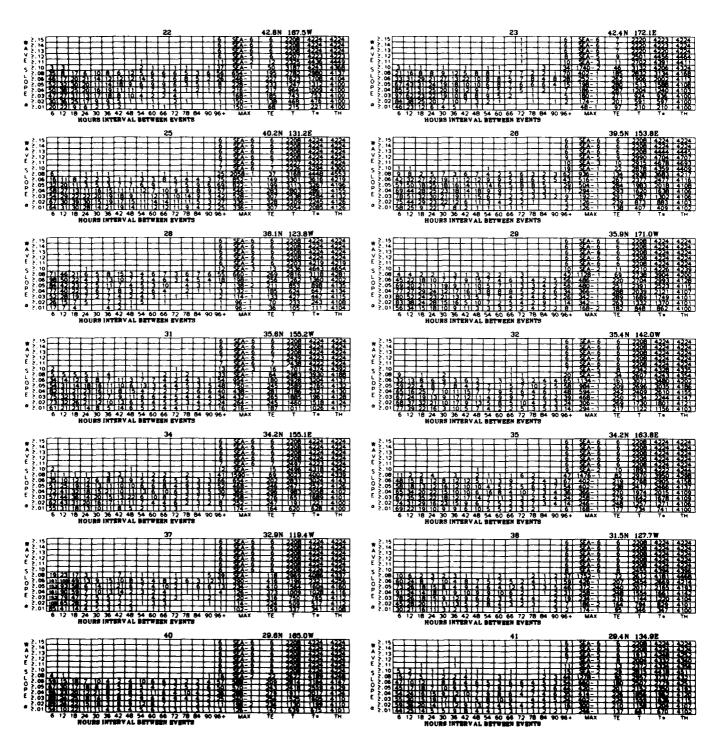
### WAVE SL



### WAVE SLOPE ( $\alpha$ ) INTERVALS

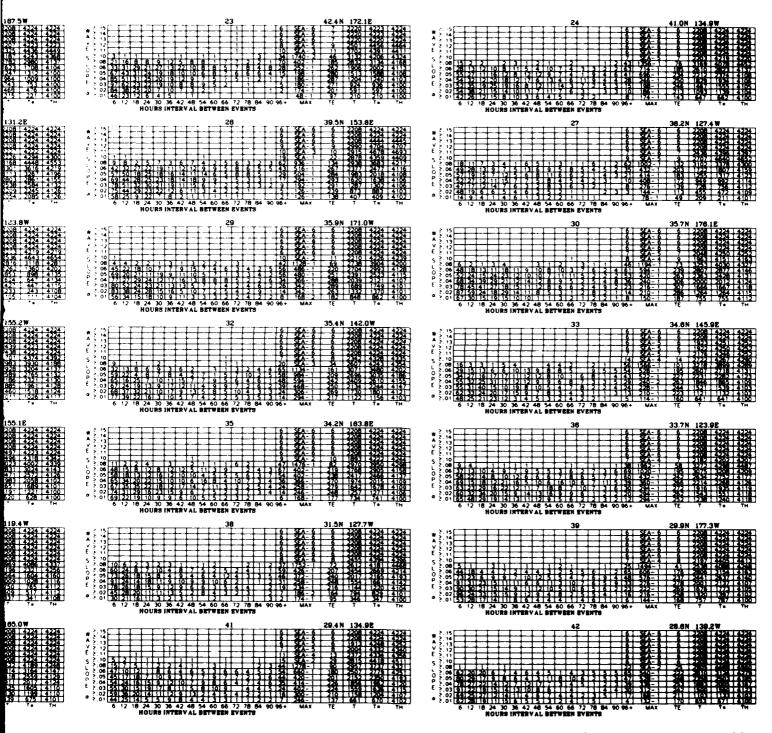


### WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)



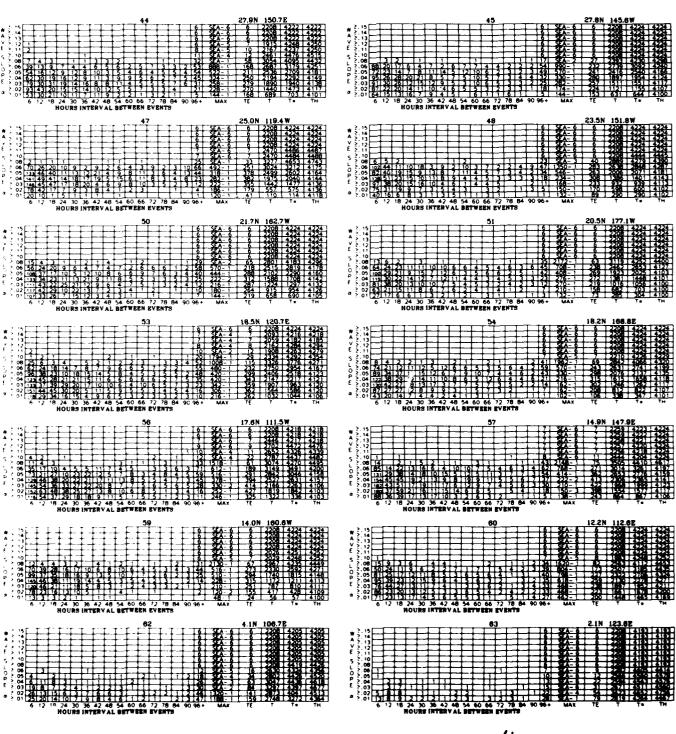
### ITERVALS (Cont'd)

### SUMMER

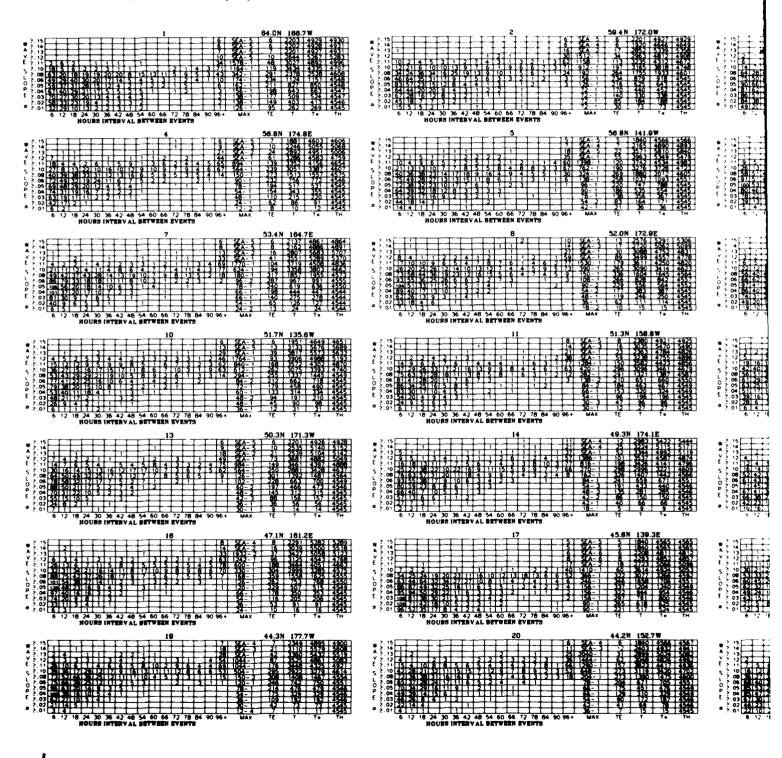


### WAVE SLOPE **SUMMER**

### WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)

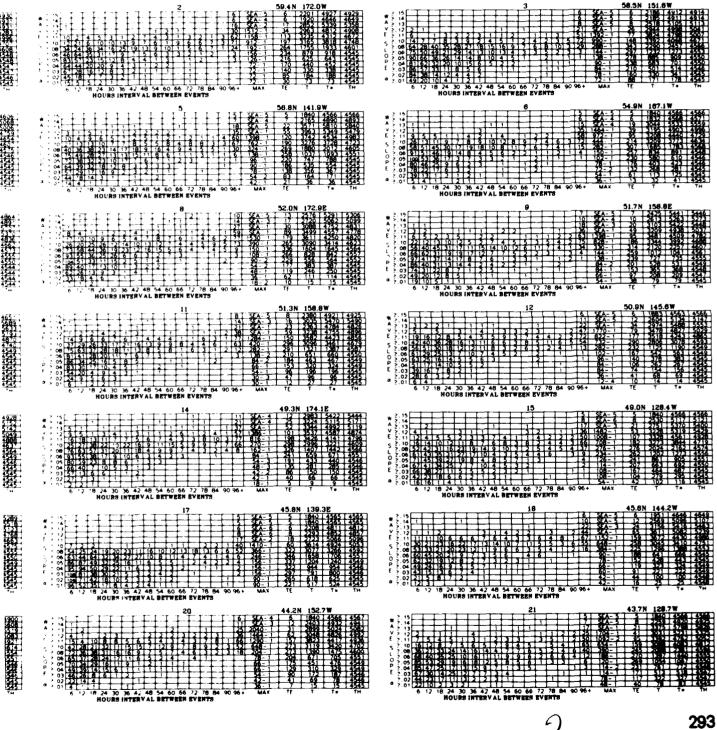


### WAVE SLOPE ( $\alpha$ ) INTERVALS

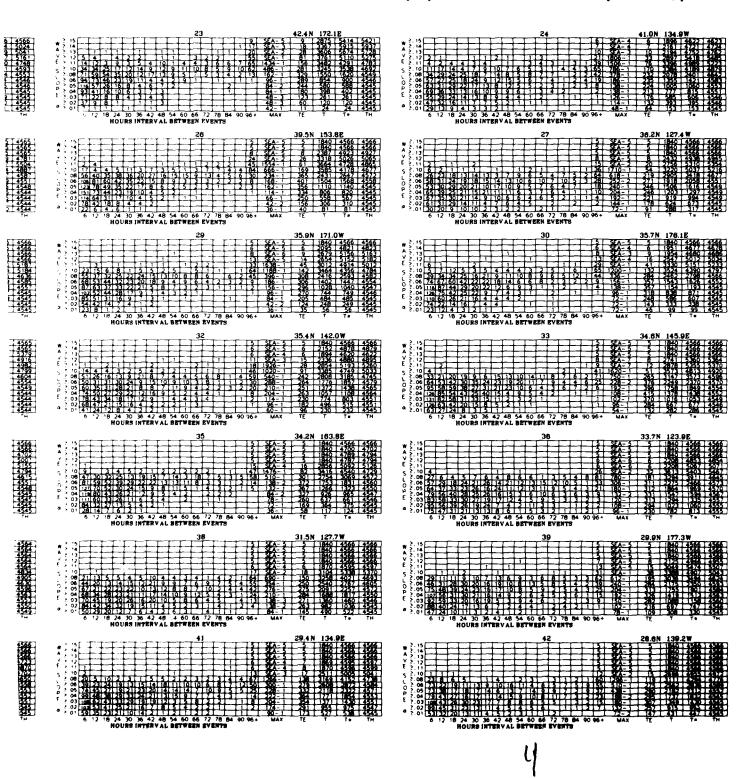


### ₹VALS

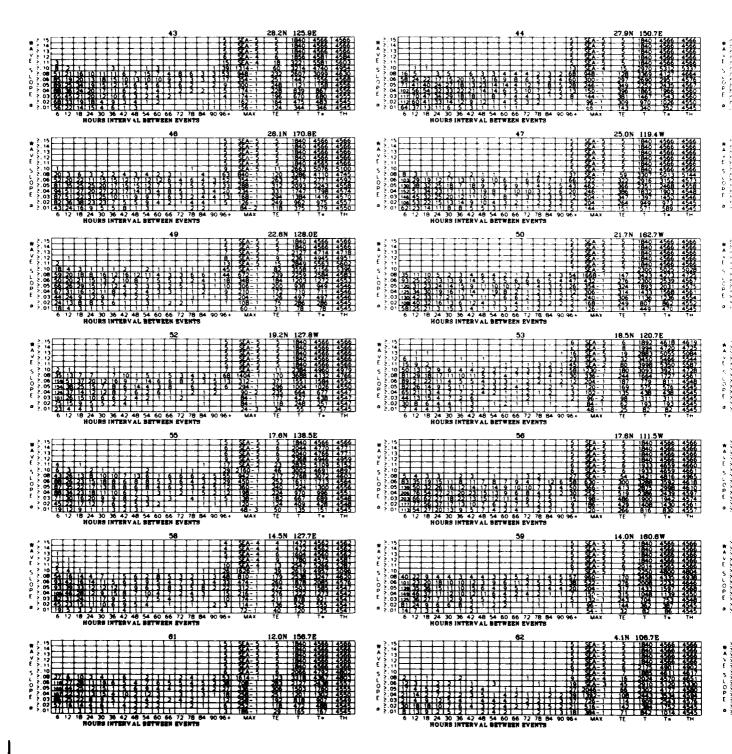
### **FALL**



## WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)

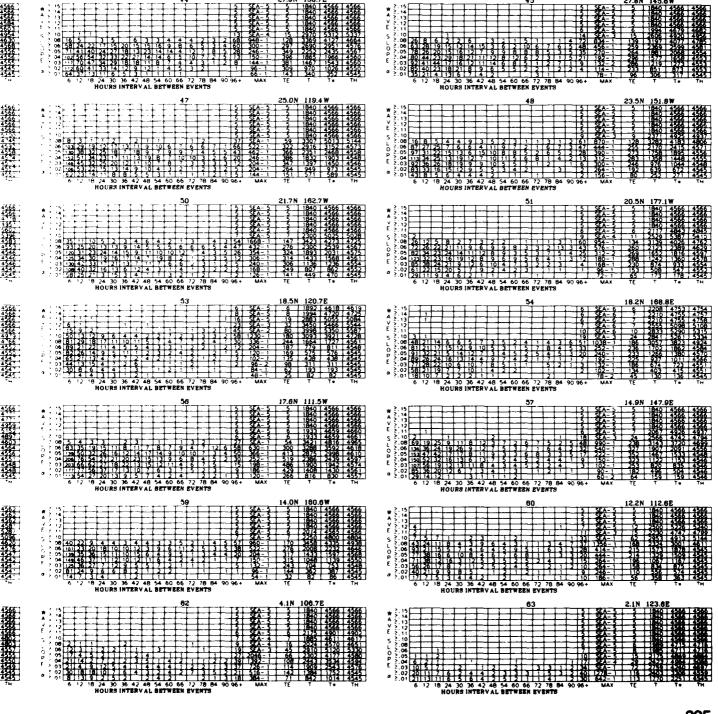


## WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)



# RVALS (Cont'd)

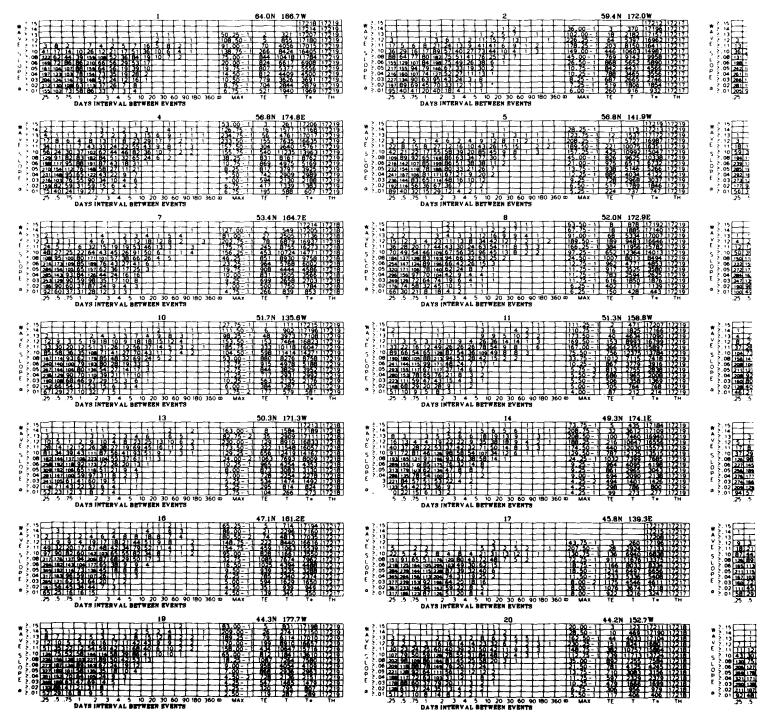
## **FALL**



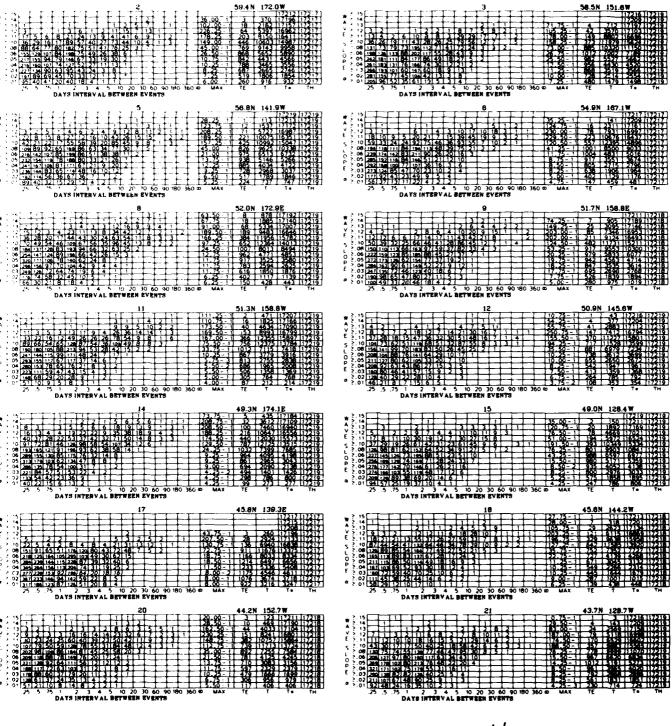
295

## **ANNUAL**

### WAVE SLO

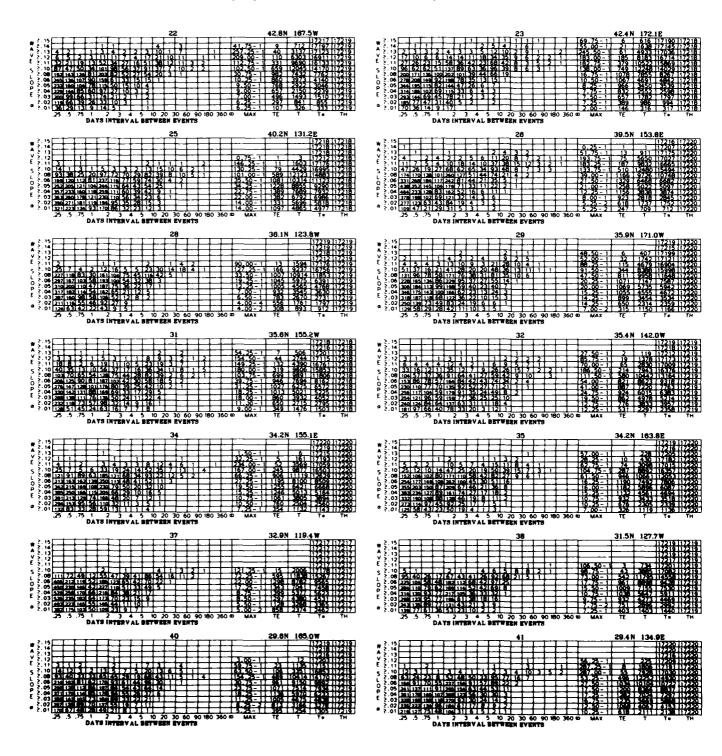


## WAVE SLOPE ( $\alpha$ ) INTERVALS



4

## WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)

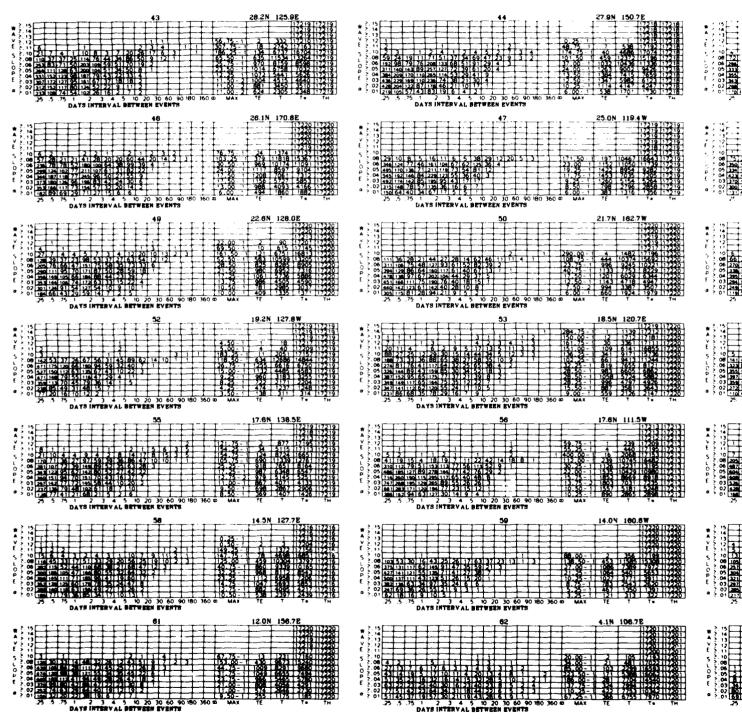


# TERVALS (Cont'd) ANNUAL

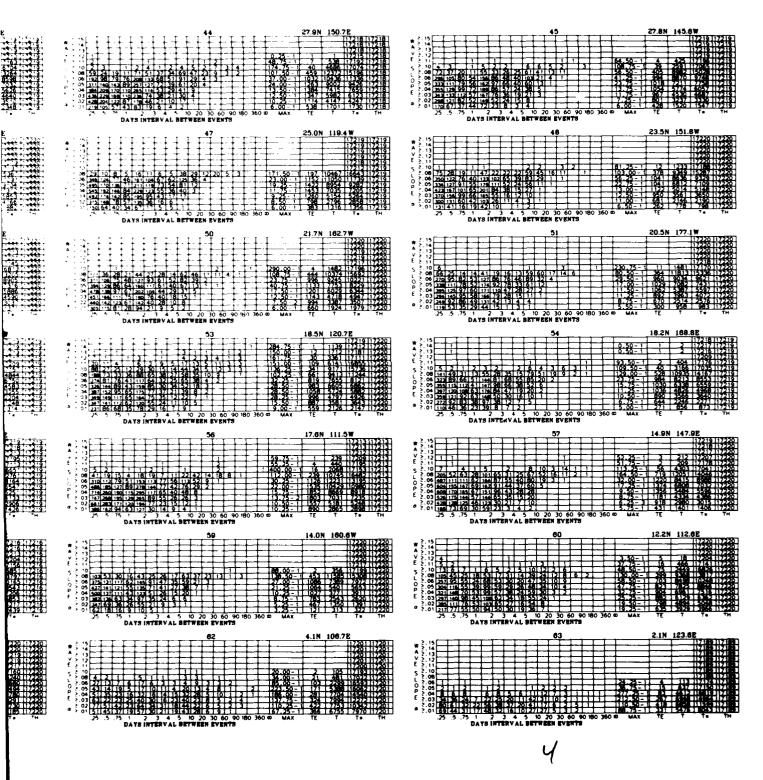
297

## **ANNUAL**

## WAVE SLOPE (a)



## WAVE SLOPE ( $\alpha$ ) INTERVALS (Cont'd)



## APPENDIX A SOWM DEVELOPMENT

Before 1975, FLENUMOCEANCEN relied on "singular" wave models to predict wind wave, and swell heights as well as their corresponding directions and periods. The basic weakness of the "singular" models is that they do not accurately depict the complex wave propagation in the larger oceans like the Atlantic and Pacific where several wave trains can coexist in one area at any given time.

The SOWM is a wave specification forecasting procedure that will describe complex frequency-direction spectrum of waves in deep water with a reasonable resolution on a grid of points over the ocean. As originally planned, there were to have been four times as many grid points and twice the angular resolution for the spectra. The computer program exists for this higher resolution model, Running time and but it is not operational. memory allocation constraints made it necessary to reduce the number of grid points and decrease the angular resolution. This coarser grid can result in a misinterpretation of sub-grid scale features and fetch.

Since the SOWM is a general deep-water model, it was not designed to include effects such as refraction, diffraction, bottom friction. shoaling, and consequence, SOWM output should be interpreted with a great deal of care for shallow water applications. Also, there are no wave-wave or wave-current interaction mechanisms; the latter have been observed to alter the wave fields in regions of a strong current like the Aguhlas Current and the Gulf Stream.

The grid of points were laid out on gnomonic subprojections of an icosahedron (a solid whose surface is 20 equilateral triangles) so as to allow great circle propagation. For each of the 20 triangles, a gnomonic projection is used. Thus, a straight line with any orientation on any of the 20 subprojections is a great circle. On the sphere, the sides of the equilateral spherical triangle intersect at an

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angle of  $72^{\circ}$  and, thus, five triangles meet at a common point. On a map, the sides of the equilateral triangle meet at an angle of  $60^{\circ}$ , if each triangle is plotted as a gnomonic projection.

The triangles are not oriented in a simple way relative to the latitudes and longitudes on the Earth. Instead, the icosahedron was located so as to maximize the number of verticies on land. Fig. Al shows the 20 triangles as their verticies and edges appear on a Miller projection. Each triangle covers exactly the same area, and the marked distortion of a Miller projection is evident.

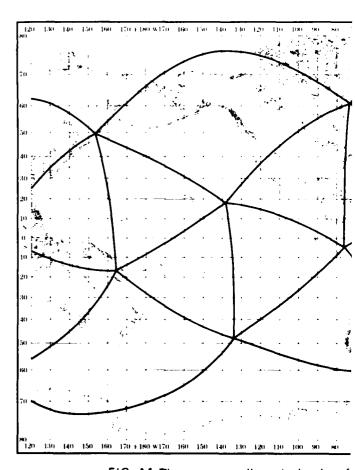


FIG. A1 The twenty equilateral triangles of All triangles are the same size on the

ngle of  $72^{\circ}$  and, thus, five triangles meet at a ommon point. On a map, the sides of the quilateral triangle meet at an angle of  $60^{\circ}$ , if ach triangle is plotted as a gnomonic rojection.

The triangles are not oriented in a simple ray relative to the latitudes and longitudes on the Earth. Instead, the icosahedron was located to as to maximize the number of verticies on land. Fig. Al shows the 20 triangles as their rerticies and edges appear on a Miller projection. Each triangle covers exactly the same area, and the marked distortion of a Miller projection is evident.

Two sides of a triangle form a natural set of axes for each subprojection and the grid of points at which the SOWM spectra are computed are formed by the intersections of equally spaced lines drawn parallel to the two chosen sides of each subprojection as shown in Fig. A2. Each grid point, in principle, ought to be representative of wave spectra anywhere within the hexagon surrounding the grid point.

<sup>1</sup> A Miller projection is a cylindrical projection similar to a Mercator projection with less exaggerated spacing of the parallels at high latitudes.

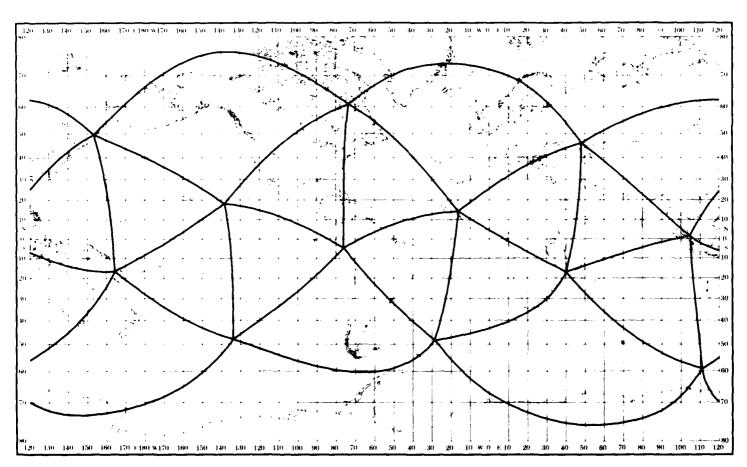


FIG. A1 The twenty equilateral triangles of the icosahedral gnomonic projection of the SOWM. All triangles are the same size on the Earth, but the Miller projection distorts them.

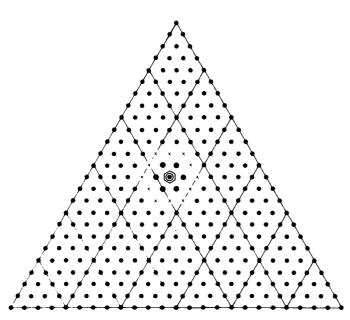


FIG. A2 The 325 grid points on a triangular gnomonic subprojection for the SOWM. Any straight line is a great circle. The hexagon around the circled dot shows the area represented by a grid point. The inner hexagon of heavy dots and the outer hexagon of X's show those grid points required to treat wave propagation effects at the circled point. (After Pierson, 1982)

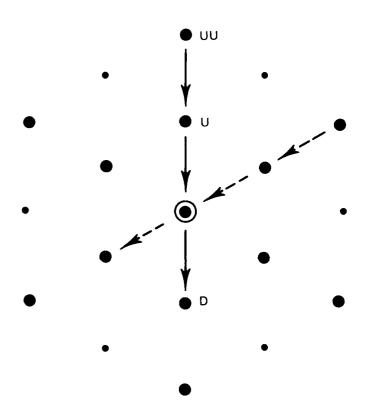
The great circle property is indicated by the fact that waves can travel to a given grid point along a great circle path from any one of the six surrounding grid points, thus accounting for six of the 12 direction bands in the model. The other six direction bands have directions of travel halfway between those for each of the primary directions. These spectral components are effectively treated as if they come from a source on the inner hexagon surrounding each grid point at a point halfway between two grid points. The distance involved is thus only about 85% of the primary distance as shown in Fig. A3.

Land boundaries and a prescribed ice limit act as sinks for spectral components. Grid points just south of the equator are treated as an artificial land boundary to provide appropriate sinks for southward moving spectral components and artificially fetch limited waves

for southerly winds at the equator. No swell from the Southern Hemisphere exists in the model, although they could be appreciable just north of the equator during the Southern Hemisphere winter. Also, there is no specific provision for tropical cyclones in the model.

Once the grid, the spectral resolution, and the time step are prescribed, the model can compute what the spectrum will be at each grid point x hours later, given an initial wave spectrum and the winds at all grid points at the time,  $t = t_0$ .

In the SOWM, this is accomplished by computing: (1) how much the wind-generated sea



#### SIX PRIMARY DIRECTIONS

FIG. A3 Grid points involved in propagation. The large dots a point a downward propagating spectral component redownstream point are shown. For secondary direction at the open circles — for one time step. The shift is redownstream.

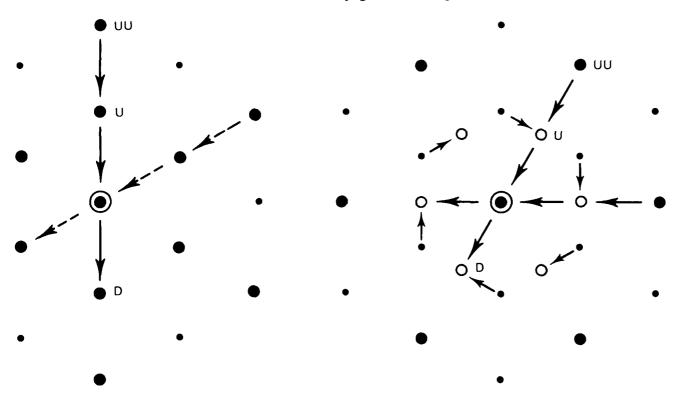
erly winds at the equator. No swell Southern Hemisphere exists in the though they could be appreciable just the equator during the Southern e winter. Also, there is no specific for tropical cyclones in the model.

the grid, the spectral resolution, and step are prescribed, the model can that the spectrum will be at each grid hours later, given an initial wave and the winds at all grid points at the to.

the SOWM, this is accomplished by ;: (1) how much the wind~generated sea

will increase or grow (if at all) during the next time step at each grid point; (2) how much the waves traveling against the wind  $(\pm 90^{\circ})$  will be dissipated; (3) how far each spectral component will propagate at a representative group velocity along a great circle path in x hours; and, then reassembling the spectra for the end of the time step.

For brevity, these steps are called Grow, Dissipate, and Propagate. For the SOWM hindcasts at the end of a six-hour time step, within the resolution of the model, the new spectra at the grid points represented the waves at t = t + 6 hours; new winds were then used, and the processes of Grow, Dissipate, and Propagate were repeated.



#### SIX PRIMARY DIRECTIONS

#### SIX SECONDARY DIRECTIONS

Grid points involved in propagation. The large dots on the left are for the six primary directions. For the circled point a downward propagating spectral component requiring an upstream point, an upper upstream point and a downstream point are shown. For secondary directions, the points on the inner hexagon are treated as if located at the open circles — for one time step. The shift is reversed for the next time step. (After Pierson, 1982)

# APPENDIX B THE FIB TECHNIQUE

The FIB technique analyzes the distribution of a variable by blending measurements of the variable and its gradients, which come from different sources and locations. The program uses reports from various observation stations with estimates of reliability, and it accepts regional or whole field estimates (gradient. parameter and its derivatives laplacian, etc.). It checks all input data, rejects gross errors, and assembles the data. From this, it blends or analyzes to produce the optimum analysis which best fits information at hand. The technique also produces grid-point reliabilities of the final All input data are reevaluated product. individually by comparison with the blended analysis, which includes the interacting effects of all information that went into the analysis.

Reliability or weight is a measure of the worth of a piece of information. In every step of the FIB process, information exercises only that degree of influence specified by its reliability value at that particular stage of the analysis. The ability to compute information reliability is the key to the power of the FIB technique.

In the reanalysis of the 6-hourly pressure fields, missing fields were resolved by combining forward and backward kinematic extrapolation. In order to carry information along a time axis by kinematic extrapolation, a steering field was required. The 500 mb height field was used for this purpose. From the pressure fields, the wind fields (speed and direction) were computed using the algorithm originally developed by MII for FLENUMOCEANCEN

for use in their singular sea/swell model. This wind algorithm was designed to be of maximum significance when used for wave generation.

A statistical analysis of computed wind speeds versus ship-observed wind speeds was conducted. Previous investigations determined that the wind algorithm produced no systematic bias in wind direction. sample of 2.3 million wind observations from ships available from 1964-65, it was concluded that the computed wind speeds on the average were 1.8% low when compared to the ship-observed wind speeds. This difference was considered insignificant. However, it should be noted that treated as a whole, the ocean basins were thereby possibly smoothing large deviations in relatively small areas or large deviations of opposite sign. Appendix F provides additional information regarding possible biases in wind speeds.

introduction of an operational planetary boundary layer model by FLENUMOCEANCEN in October 1975 altered the algorithm used to calculate input winds for the SOWM model. the boundary layer model the gradient wind calculated from the pressure field is modified, using similarity theory, by surface friction and thermal stratification (U. S. Navy, 1975). winds were calculated for two levels (64 ft and 19 ft) required for the SOWM. Previous to October 1975 thermal stratification in boundary layer was not explicitly considered in either the hindcast or the operational wind (Lazanoff and Stevenson, Mendenhall, 1984). This may be important since wave growth in the SOWM is dependent upon the friction velocity (the vertical transfer of horizontal momentum) which is dependent upon stability i.e., waves grow faster when the air is colder than the water compared to warm air over cold water.

# APPENDIX C PARAMETER DERIVATIONS

The output from a SOWM hindcast includes a directional variance spectrum at each grid point as represented by 12 equally divided direction bands and 15 frequency bands of varying widths as depicted in Tables Cl and C2. The direction bands are unique for each grid point, but the frequency bands remain constant for all grid points (Table C2). The lowest possible frequency in a SOWM spectrum is 0.0390 Hz which corresponds to a period of 25.6 seconds.

Conversely, the highest frequency is 0.308 Hz which corresponds to a period of 3.24 seconds. The SOWM generates 'energy variances' in each cell within the 180 element matrix from input wind fields. There is a certain amount of confusion inherent in the terminology 'energy variances' since the values within each cell are not energies. It is necessary to digress somewhat to appreciate the roots of this terminology.

In a steady Sea State the record of the waves (a continuous time series of the rise and fall of the sea surface at a point) does not

#### TABLE C1

#### AN EXAMPLE OF A DIRECTIONAL VARIANCE SPECTRUM

Wind Direction = 160° Wind Speed = 21.5 kn

Central Frequency (hz)

Direction (deg)	.308	.208	.158	.133	.117	.103	.092	.081	.072	.067	.062	.056	.050	.044	.039	Directional Total
96.6																
66.6																
36.6																
6.6													,			
336.6																
306.6																
276.6				.01	.06	.10	.15	.42	.15	.02		.02				.93
246.6	.04	.13	.18	.13	.13	.11	.05	.03	.01			.01				.82
216.6	.06	.20	.35	.29	.33	.18	.06	.02								1.49
186.6	.06	.20	.37	.30	.28	.01	.09	.02								1.33
156.6	.04	.14	.20	.14	.12	.01	.03	.01								.69
126.6	.03	.08		.04	.03											.18
Frequency Spectrum	.23	.75	1.10	.91	.95	.41	.38	.50	.16	.02		.03				5.44 Total

Derived parameters:  $\overline{H}_{m_0}$  = 9.3 ft.,  $T_p$  = 8.57 s.,  $\alpha$  = 0.085, PWD = 212°,  $\rho_c$  = 0.77

ighest frequency is 0.308 Hz to a period of 3.24 seconds. s'energy variances' in each 80 element matrix from inputere is a certain amount of it in the terminology 'energy the values within each cell are It is necessary to digress reciate the roots of this

Sea State the record of the us time series of the rise and urface at a point) does not

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.056 .050 .039 .044 Directional Total .02 .93 .01 .82 1.49 1.33 .69 .18 5.44 Total .03

-(ft<sup>2</sup>)

repeat itself exactly from one wave to the next because the waves are a superposition of sinusoids with many different frequencies and Every wave record of directions of travel. finite length as a function of time, however, can be decomposed into harmonics. The zeroth harmonic is the mean elevation of the sea and is assumed to be zero for the analysis since the contributions from much longer periods such as the tides are constants during the time of observation. The first harmonic, is a least squares fit of a sinusoid with a period equal to the wave record with its peak positioned such that its amplitude is maximized. The first

TABLE C2

BAND NUMBER, BAND WIDTH, CENTRAL FREQUENCY (AS A FRACTION AND A DECIMAL), PERIOD, AND BANDWIDTH BOUNDS (After Pierson, 1982)

Band Number	Band Width x 180	Central Frequency	Central Frequency	Period	Lower Bound x 180	Upper Bound x 180
1	24	55.5/180	0.30833	3.24	43.5	67.5
2	12	37.5/180	0.20833	4.8	31.5	43.5
3	6	28.5/180	0.15833	6.32	25.5	31.5
4	3	24.0/180	0.1333 <del>3</del>	7.5	22.5	25.5
5	3	21.0/180	0.11666	8.57	19.5	22.5
6	2	18.5/180	0.10277	9.73	17.5	19.5
7	2	16.5/180	0.09166	10.91	15.5	17.5
8	2	14.5/180	0.08055	12.4	13.5	15.5
9	1	13.0/180	0.07222	13.85	12.5	13.5
10	1	12.0/180	0.0666	15.0	11.5	12.5
11	1	11.0/180	0.06111	16.4	10.5	11.5
12	1	10.0/180	0.0555	18.0	9.5	10.5
13	1	9.0/180	0.050Õ	20.0	8.5	9.5
14	1	8.0/180	0.0444	22.5	7.5	8.5
15	1	7.0/180	0.0388	25.7	6.5	7.5

2

harmonic has one maximum and minimum for the entire wave record. The second harmonic has a period of one-half the wave record with its two peaks positioned such that it too has maximum amplitude. Each subsequent harmonic can be thought of as a least squares fit of a sinusoid with the number of peaks and valleys (or the period) increasing (decreasing) corresponding to the harmonic number. By adding each harmonic to the preceding harmonics, harmonics or the 'Fourier Series' begin to If the number of resemble the wave record. observations on the wave record is N, then N/2harmonics will completely describe the wave record.

The average energy in the wave motion per unit area is described by:

$$E = \frac{1}{2} \rho g a^2$$
 (C1)

where  $\rho$  is the density of the ocean water, g is the acceleration of gravity, and a is the wave amplitude. Half of the energy is kinetic, and the other half is potential.

Recalling that each wave record can be decomposed into a number of harmonics, then if the amplitude of each harmonic is squared, multiplied by  $(\frac{1}{2} \rho g)$ , and plotted on a graph as the ordinate using the associated frequency or period of the harmonic as the abscissa, the resulting graph is a 'wave energy spectrum.' Initially it was customary to present spectrum in this manner (World Meteorological Organization, 1976), but since the magnitude of the right-hand side of Eq. Cl is dominated by  $(a^2)$  the multiplication of  $(\rho g)$  is now omitted. This is the format of the data generated in the SOWM hindcasts. Each cell in Table Cl can be summed to yield the quantity  $(1/2a^2)$ . omission of (pg) transforms the 'wave energy spectrum' into an 'energy variance spectrum' more appropriately 'variance spectrum,' since the sum of each cell in Table Cl will equal the variance of the spectrum of the wave record it is representing. Likewise, the area under a variance spectrum curve as derived from the frequency spectrum totals in Table Cl will equal the variance of the spectrum represented.

#### **WAVE HEIGHT**

In Table Cl each quantity within the cel of the table has units of ft2, and cells with any values contain component variances less th 0.01 ft<sup>2</sup>. Such small values were consider insignificant, and were not retained in t output generated from the SOWM hindcast. total variance of each spectrum can be convert to a spectral wave height parameter  $(H_{m_0})$  whi closely corresponds to the significant wa height  $(\overline{H}_{1/3})$ . The significant wave height on wave record is defined as the average height the highest one-third of the wave heights. quantity  $(H_{1/3})$  has been shown to approximate the characteristic wave heig observed visually (Cartwright, 196 Nordenstrom, 1969). The spectral wave heig parameter  $(H_{m_0})$  from Rayleigh statistics defined as:

$$H_{m_0} = 4 (m_0)^{\frac{1}{2}}$$
 (C.

where  $m_0$  is the sum of the component variance of all cells of Table Cl. The quantity  $(m_0)$ commonly referred to as the moment of orde zero. The correspondence between  $H_{m_{\Omega}}$  and  $\overline{H}_{1}$ is strictly valid for a spectrum with most of its energy or variance concentrated over of frequencies, hut narrow range approximation in the cases with broad spectrum is sufficiently close for practical applications (World Meteorological Organization, 1976).

#### WAVE PERIOD

The choice of the modal or peak wave perio (TD) is based upon the 'variance densities' the point spectrum. 'Variance densities' wi dimension of ft2-sec are obtained by dividia the variances by the frequency bandwidth. the SOWM the bandwidths vary in size from 0.00560 to 0.1333 Hz. After dividing by the bandwidth, the energies are standardized wi respect to one another. Tp can then be obtain choosing the central frequency, corresponding period, associated with the per variance density. In Table Cl, Tp is associate with the central frequency of 0.117 Hz, which equates to a period of 8.5 seconds. The proble

#### **WAVE HEIGHT**

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$$H_{m_0} = 4 (m_0)^{\frac{1}{2}}$$
 (C2)

ere  $m_0$  is the sum of the component variances all cells of Table Cl. The quantity  $(m_0)$  is monly referred to as the moment of order to. The correspondence between  $H_{m_0}$  and  $\overline{H}_{1/3}$  strictly valid for a spectrum with most of senergy or variance concentrated over a row range of frequencies, but the proximation in the cases with a broader ectrum is sufficiently close for most actical applications (World Meteorological ganization, 1976).

#### WAVE PERIOD

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associated with an ill-defined modal period of a specific spectrum, as occurs when there is only a small difference between the variance densities of two or more frequency bands, is minimized due to the large number of spectra included in the summaries presented in this atlas.

#### **WAVE SLOPE**

The slope associated with very high waves is considered by many ship designers to be a major contribution to operational failures. The wave slope is often estimated using the ratio of the wave height (H) to the wave length (L). However, the relationship usually used to obtain the wave length:

$$L = 5.12T^2 \tag{C3}$$

where T is the wave period in seconds and L is the wave length in feet is valid only when the wave is a simple periodic sine wave. Pierson (1955) clearly states that Eq. C3 does not hold for the irregular sea surface. The assumptions under which Eq. C3 was derived are violated outside of the wave tank. An alternative method of estimating the wave slope is needed. Since the SOWM provides a frequency spectrum of wave energy this information is used directly in this atlas to calculate a wave slope parameter (a).

The wave slope parameter,  $\alpha$  , is defined by:

$$\alpha = (m_4)^{\frac{1}{2}}/g \tag{C4}$$

where m<sub>4</sub> is the moment of order four (the fourth moment). The moments are defined by:

$$m_{n} = \sum_{i=1}^{K} v_{i} \omega_{i}^{n}$$
 (C5)

where  $\omega$  is the circular frequency, n is the order of the moment,  $V_1$  is a component variance, and  $\kappa$  is the number of frequency bands. The parameter  $\alpha$  is the root mean square of the absolute slope at any fixed point. Cummins and Bales (1980) derived the wave slope parameter  $\alpha$ . It should be noted that  $\alpha$  is more strongly influenced by the shorter, higher frequency components of the spectrum than by the

larger, longer, but not so steep waves near the modal frequency. Thus, a "rough sea" as measured by a, does not necessarily imply a "high sea." Information regarding the significance of its range of values can be calculated from the derivation of the root mean square wave slope of a regular wave. The resulting equation is (Gentile, 1982):

$$\alpha = \sqrt{2} \frac{H_{w}}{L_{w}}$$
 (C6)

where  $H_{\rm W}$  is the wave height (crest to trough) and  $L_{\rm W}$  is the wave length. Information in Table C3 is based upon Eq. C6.

TABLE C3

APPROXIMATE VALUES OF WAVE LENGTH
TO WAVE HEIGHT FOR ASSOCIATED VALUES
OF THE WAVE SLOPE PARAMETER (\alpha)

Wave Slope Parameter ( $\alpha$ )	Ratio Wave Length (L) to Wave Height (H)	Angle of Wave Slope Tan <sup>—1</sup> (H/L)
0.01	222.0	0.30
0.02	111.0	0.5°
0.03	74.0	0.8°
0.04	55.5	1.0°
0.05	44.4	1.3º
0.06	37.0	1.5°
0.08	27.8	2.1°
0.10	22.2	2.6°
0.11	20.2	2.8°
0.12	18.5	3.10
0.13	17.1	3.30
0.14	15.9	3.6°
0.15	14.8	3.90

## PRIMARY WAVE DIRECTION AND DIRECTIONALITY

The primary wave direction (PWD) and the directionality ( $\rho_{\rm C}$ ) are two parameters which a derived from the directional spectrum totals opposed to the frequency spectrum totals. The definition of the PWD is taken directly from the FLENUMOCEANCEN's 1981 version of the operational SOWM computer program (Lazanof: 1981). The PWD is determined by a multi-steprocess. First, the maximum variance ( $V_{\rm m}$ ): the directional totals is identified, where means one of the twelve directional bands. Next, the following true-false tests are performed is sequence.

$$V_{m} > \sqrt{2} \begin{bmatrix} 12 \\ \Sigma \\ i=1 \end{bmatrix} V_{i}$$
  $i \neq m$  (C7)

$$V_{m,m+1} > \sqrt{2} \begin{bmatrix} 12 \\ \Sigma \\ i=1 \end{bmatrix} V_{i}$$
  $i \neq m$  (C8)

$$V_{m,m+1,m-1} > \sqrt{2} \begin{bmatrix} 12 \\ \Sigma \\ i=1 \end{bmatrix} V_i$$
 i  $\neq m$  (C5)

where i is one of the 12 directional bands, as  $V_{m+1}$  is the higher of the two adjaces directional variances.

If Eq. C7 is true, then the PWD is the

## MARY WAVE DIRECTION AND DIRECTIONALITY

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$$\sum_{\mathbf{m}} > \sqrt{2} \left[ \sum_{i=1}^{2} \mathbf{V}_{i} \right] \mathbf{i} \neq \mathbf{m}$$
 (C7)

$$m_{m,m+1} > \sqrt{2} \begin{bmatrix} 12 \\ \Sigma \\ i=1 \end{bmatrix} V_i$$
  $i \neq m$  (C8)

$$\frac{12}{m, m+1, m-1} > \sqrt{2} \left[ \sum_{i=1}^{\Sigma} V_i \right] i \neq m$$
(C9)

i is one of the 12 directional bands, and is the higher of the two adjacent ional variances.

f Eq. C7 is true, then the PWD is the

direction associated with V<sub>m</sub>. If C7 is false, Eq. C8 is tested; and thusly for Eq. C9. For the first successful test of Eq. C8 or C9, the vectors defined by the directions and variances of the quantities on the left-hand side of the inequalities are summed and the resultant direction defined as the PWD. If Eq. C9 is false, then the PWD is not defined, and a confused sea state is assumed. The methodology used for defining the PWD is somewhat arbitrary, but the technique has proved quite useful operationally (Lazanoff, 1981).

The degree of directionality is defined by:

$$\rho_{c} = (\rho_{x}^{2} + \rho_{y}^{2})^{\frac{1}{2}}$$
 (C10)

where

$$\rho_{c} = (1/m_{o}) \sum_{i=1}^{2} V_{i} \sin \theta_{i}$$
 (C11)

$$\rho_{y} = (1/m_{o}) \sum_{i=1}^{12} V_{i} \cos \theta_{i}$$
 (C12)

The angle  $\theta$  is the direction associated with the variances in the directional spectrum totals. The directionality has a value of one for an unidirectional sea state, and a value of zero when there is a completely symmetric distribution of variance around the compass. This parameter has the same properties as the 'constancy' parameter, often used in climatological wind summaries.

#### APPENDIX D

#### SOME APPLICATIONS OF CONTINGENCY TABLES

Question: What is the Climatological probability of having wave heights less than 20 ft at 56°N, 1420W in Autumn?

Sample Application: A war at sea exercise is planned for 10 through 19 November at 56°N, 142°W. order to complete all phases of the exercise within the 10 day period available, at least 7 days (not necessarily consecutive) with significant wave heights less than 20 feet are needed. Based on climatology, will 10 days probably be enough time to complete all phases of exercise?

Answer:

Proceed to the Autumn wave height and wind speed contingency table for the grid point nearest to 56°N, 142°W. From Table 1 or Fig. 1 (North Pacific map) we find that this is the contingency table for sequence number 5. (For illustrative purposes the contingency table from the "Legends for Tables" is used in the following solution.) climatological probability οf having wave heights <20 ft can be found by adding the percent frequency of occurrences in the "T" or total column for wave heights <20 ft. The result is 2+3+9+14+20+17 = 65%. This means that on the average 65% of the time waves less than 20 ft will be encountered during November. Since 10 days have been allowed for the exercise on average 10 X .65 = 6.5 days will have significant wave heights less than 20 ft. Thus based on

climatology, 10 days will probably not be enough time to complete the exercise. However, if the exercise period could be extended to 11 days, on average 7.2 days (.65 X 11) would have less than 20 ft waves and the exercise could probably completed.

2. Question: How can the tables be utilized to predict the efficiency of a vessel, system, or operation, for a given area and time of the

year?

Answer: Operational enhancement by environmental tuning mav be realized through the following procedure:

Identify the (a) desired acceptable joint frequency occurrence for the parameters of interest, i.e., wave height and wind direction, wave height and wave slope, etc.

(b) Extract the joint percent frequency of occurrence for the parameter(s) of interest from the appropriate contingency table for the desired time interval (month, season, or annual), for area(s) of interest.

(c) Derive probabilities of efficiency by determining the percent of the time that the identified environmental conditions fall within desired operable limits.

3. Question: How can the tables be used to assess how the environment may have been a contributing factor in the failure or damage of a system, operation, or equipment? (Note: This does not pertain to failures due to a specific episode, but rather to failures which result from cumulative stresses over a significant of portion the ship's "lifespan").

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- (a) Identify the acceptable joint frequency occurrence for the parameters of interest, i.e., wave height and wind direction, wave height and wave slope, etc.
- Extract the joint percent (b) frequency of occurrence for the parameter(s) of interest from the appropriate contingency table for the desired time interval (month, season, or annual), for area(s) of interest.
- (c) Derive probabilities efficiency by determining percent of the time that the identified environmental conditions fall within desired operable limits.

Question: How can the tables be used to assess how the environment may have been a contributing factor in the failure or damage of a system, operation, or equipment? (Note: This does not pertain to failures due to a specific episode, but rather to failures which result from cumulative stresses over a significant portion of the ship's "lifespan").

Answer:

Inputs to assess environmental impact on a system of operation may be gathered by:

- (a) Identify the area(s), time (month) of failure or damage.
- (b) Identify the wind and wave conditions which if exceeded would probably cause damage or failure.
- (c) Derive the percent occurrence of conditions, exceeding those conditions identified in Step 2, for the corresponding area(s) and time (Silver and Bales, 1983).

Question:

How can these tables assist in ship design?

Answer:

For example, U. S. Navy ship designers follow four steps when applying the information contained in this design.

(a) Define the mission of the vessel, and determine the significant wave heights in which the mission must be performed at required levels of efficiency.

#### \*EXAMPLE\*

Mission	Maximum Allowable Ship Motion	Significant Wave Height
^peration of Aircraft continuous Total Mission Limited Operation Survivability	5º roll 10º roll 15º roll N/A	<13 ft (4m) 13-20 ft (4-6m) 20-30 ft (6-9m) >46 ft (14m)
(b) Identify the area(s operation. (c) Extract wave height pe	•	How can these tables be utilized in planning a ship trial?
of occurrences from the	Wave Answer: eriod the an be  onses of and on by s of icant lopes s of wave eriod ales, the ed in	Ship trial planning can be enhanced through the use of this atlas by following a procedure similar to that used by the ship designer to identify areas of the ocean likely to provoke the desired ship motions at a given time of the year.  (a) The first step is to define the seaway (upper and lower wave height limits) best suited for specific tasks of the ship trial.  (b) Identify the general geographic area of the trial.  (c) Identify the times (months) which have acceptable probability (e.g., 50%, 75%, 80%, etc.) of occurrence of the desired wave heights. Probabilities of occurrence can be derived by extracting the wave height from

# APPENDIX E DURATION AND INTERVAL TABLES

In the seasonal tables, durations intervals that are underway at the beginning of a season are treated as if they began on the first day of the season. The other alternative, going backwards in time into the previous season to search for the actual beginning time, was appropriate for planning considered less purposes. When a mobile platform (ship) arrives at a location at some arbitrary time, the duration of the current episode previous to ship's arrival is not usually important. ship is affected only by the number of hours the episode is likely to continue for the time the ship remains in that vicinity. It is not particularly important that the beginning of a season was used for the start-up of duration or interval frequencies, whereas, actual operations may be scheduled to begin at times other than the beginning of the season; episodes are likely to occur in a near-random manner through the course of specific seasons. In terminating durations and intervals, episodes that carried beyond the end of the season were counted until they actually ended or they continued for more than one season (90 days), whichever occurred first. This prevents episodes from becoming artificially short simply due to the ending of the season. For example, if a plan calls for a ship to be at a specific location near the end of the season and remain in that vicinity for several weeks into the next season, the planner only needs to check the table for the season in which he plans to arrive and not a subsequent table for some later season.

In the summary tables covering all seasons, durations and intervals that are underway at the beginning and end of the period of record are not counted. These summary tables represent the wind or wave environment at a fixed position over the 12.5-year hindcast period. By assuming a stable climate and using appropriate statistical procedures, these tables can be used to estimate conditions which would affect a fixed platform for the expected lifetime of the

platform at a fixed position.

Missing data were not replaced with estimated values. When missing data were encountered, the ongoing and subsequent episodes were excluded from the duration and interval frequencies. This tends to reduce the number of very long-duration events common to the summary tables covering all seasons. It has little effect on the statistics for shorter duration phenomena.

Definitions of column trailers in the duration and interval tables (see 'Legends for Tables') are as follows:

MAX: The maximum duration (or interval) in hours, followed by the number of times an episode of that length occurred. The abbreviation "SEA" in the seasonal tables represents episodes that lasted one season or longer.

TE: The number of events satisfying the stated criteria. An event begins with the wind speed, wave height or slope increasing to the giver threshold.

TI: The number of intervals. These are episodes not satisfying the stated criteria. An interval begins with the wind speed, wave height or slope falling below the given threshold.

T: The total number of hindcasts that were included in (TE) or (TI).

T\*: The total number of hindcasts that met the stated criteria. This is more than T if missing data made the duration or interval impossible to determine. It can be used to determine the probability of encountering the conditions specified (by computing T\*/TH).

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: The total number of hindcasts that were included in (TE) or (TI).

T\*: The total number of hindcasts that met the stated criteria. This is more than T if missing data made the duration or interval impossible to determine. It can be used to determine the probability of encountering the conditions specified (by computing T\*/TH).

TH: The total number of hindcasts examined.

If the number of the 'duration of events' or 'intervals between events' exceeds 999, the symbol 'K' is used to denote thousands, and the '\(\geq\)' symbol is used to denote greater than or equal to. For example, \(\geq\)1K implies greater than or equal to 1,000 durations or intervals. In order to correctly interpret the tabulations, specific examples of the various types of duration and interval tables are provided in the 'Legends for Tables.'

When answering questions using the duration and interval tables, it is important distinguish between questions that require the use of the number of episodes and those that require the number of hindcasts. Answers for questions regarding the percentage of time at or above, or below, certain thresholds require the use of the number of hindcasts. On the other hand, questions concerned with the percentage of episodes at or above, or below, thresholds demand the use of frequencies, where a one-day episode and a 60-day episode will each count as one episode.

The following examples are provided to illustrate applications of the tables. The numbers in the examples are extracted from the sample tables in the legends. Regardless of the type of parameter used (wind speed, wave height or slope), the procedures are not altered.

## APPLICATIONS OF DURATION AND INTERVAL TABLES

1. Question: Of all the events with winds of 34 knots or more during a particular season, what percentage had durations of longer than one day?

Sample Application: Winds have just increased to gale force (34 knots or more) at a ship's location. What is the climatological probability that the gale force winds will persist longer than one day?

Answer: number of events episodes) >34 knots is 39 (from the TE column of the duration 'Legends table in the Tables'). The number of events of winds >34 knots lasting more than one day is 1 + 3 + 1 + 1 =6. The percentage of events with winds >34 knots lasting one day or more is thus 6 39 X 100% = 15.4%.

Question: What percentage of the time during a particular season can waves greater than or equal to 20 ft be expected to persist longer than 24 hours?

Sample Application: Carrier flight operations have been scheduled for a specified operating area during a particular season. Flight operations need to commence within 24 hours of arrival within the operating area. They cannot be conducted if the significant wave height is 20 ft or more. What is the climatological probability that the carrier will be unable to conduct flight operations in the operating area for more than 24 hours due to high seas?

Answer: This problem involves computations using hindcasts from the seasonal duration table rather than episodes from the duration table since we answering a question regarding the percentage of time. solution can be found by computing the joint percentage as follows: (percent of waves >20 ft times percent of >20 foot waves that persist longer than 24 hours). Note that the percent of >20 foot waves that lasted <24 hours plus the percent of >20foot waves that lasted >24 hours is 100% so we can compute

whichever is easier and subtract from 100% if necessary. Percentages are used because of the difference between T and caused by missing data. Step 1. Compute the percent of  $\geq 20$  foot waves that lasted >24 hours. Ιn this example it will be easier to find the percent for <24 hours then subtract from 100% to obtain the percent we require. requires the calculation of the total number of hindcasts meeting this criterion.

This procedure is as follows:

Dui	ration	Hindcasts Per Event		Frequency (From Table)		Hindcasts ≥20 ft La <24 Hours
6	hours	1	X	7	=	7
12	hours	2	X	2	=	4
18	hours	3	X	8	=	24
24	hours	4	X	7	=	28
				TOTAL:		63

Thus, the percent of  $\geq 20$  foot waves that lasted  $\leq 24$  hours is (63 175)  $\times 100\% = 36.0\%$ . The percent of  $\geq 20$  foot waves lasted  $\geq 24$  hours is 100% - 36.0% = 64.0%.

Step 2. The percent of waves  $\geq 20$  feet is (T\*/TH) X 100% or (181 1236) X 100% = 14.6%. Step 3. The answer is 64.0% X 14.6% = 9.4%

NOTE: If an answer is required for a period which spans two seasons an approximate procedure would be to calculate the answer for each season to get a range of expected duration or intervals.

3. Question: Considering all the intervals between events with significant

whichever is easier and subtract if 100% necessary. from Percentages are used because of the difference between T and T\* caused by missing data. Step 1. Compute the percent of >20 foot waves that lasted >24 hours. In this example it will be easier to find the percent for <24 hours then subtract from 100% to obtain the percent we require. requires the calculation of the total number of hindcasts meeting this criterion.

This procedure is as follows:

Hindcasts Per Event		Frequency (From Table)			Lasting
1	х	7	=	7	
2	X	2	=	4	
3	X	8	=	24	
4	X	7	=	<u>28</u>	
		TOTAL:		63	

Thus, the percent of  $\geq 20$  foot waves that lasted  $\leq 24$  hours is  $(63 \ 175) \times 100\% = 36.0\%$ . The percent of  $\geq 20$  foot waves lasted  $\geq 24$  hours is 100% - 36.0% = 64.0%.

Step 2. The percent of waves  $\geq 20$  feet is (T\*/TH) X 100% or (181 1236) X 100% = 14.6%. Step 3. The answer is 64.0% X 14.6% = 9.4%

NOTE: If an answer is required for a period which spans two seasons an approximate procedure would be to calculate the answer for each season to get a range of expected duration or intervals.

estion: Considering all the intervals between events with significant

wave heights greater than or equal to 9 feet during a specific season, what percentage persisted more than 24 hours?

Sample Application: A tug has just arrived at the location of a salvage operation. Seas are less than 9 ft. In order to successfully conduct the salvage operation, the significant wave height must remain less than 9 ft for at least 24 hours. What is the climatological probability that the operation can successfully be conducted?

Answer:

This problem involves the use of the seasonal interval tables, since we want intervals between wave height >9 ft. The number of intervals between events of waves >9 ft is 72 (from the TI column of the interval table). number of intervals between events (episodes) of wave height >9 ft lasting 24 hours or less is  $\overline{12} + 13 + 5 + 8 = 38$ . percentage of intervals between waves >9 ft lasting 24 hours or less is thus (38 72) X 100% = 52.8%. In other words, 52.8% of all the episodes with waves <9 ft persisted 24 hours or less, and the percentage of <9 ft wave episodes lasting longer than 24 hours is 100% - 52.8% = 47.2%. the climatological probability that the operation can successfully be conducted is 47.2%.

o. Question: What percentage of the time can significant wave heights less than 12 ft be expected to persist longer than two days?

Sample Application: A particular location is being considered as an ASW (anti-submarine warfare) exercise area. Significant wave heights

4

less than 12 ft are required for the exercises, which normally last at least two days. On an annual basis, what percentage of the time could exercises be successfully conducted at the location?

Answer:

This problem requires the use of hindcast frequencies from the interval table which summarizes all proceed We seasons. following the steps outlined in Question 2. Step 1. Compute the percent of <12 ft waves that lasted >2 days. This requires estimation of the total number of hindcasts meeting this criterion. Estimation is necessary because beyond one day, the 0.25 day resolution of the hindcasts is lost in the summary process, so we must approximate the average number of hindcasts per interval. Since the 1 to 2 day interval includes episodes consisting of 1.25, 1.5, 1.75 and 2 days (that is 5, 6, 7, and 8 hindcasts), the average hindcasts per interval is 6.5. In this example it will be easier and more accurate to find the percent for  $\leq 2$  days then subtract from 100 to obtain the percent we require. The procedure is as follows:

Interval	Hindcasts per Interval		equency rom Tab	le)	Hindcasts Not ≥12 Ft Lasting ≤2 Days		
0.25 day	1	х	53	=	53		
0.50 day	2	Х	34	=	68		
0.75 day	3	Х	25	=	75		
1 day	4	X	15	=	60		
1-2 days	6.5	X	52	=	338		
		TO	TAL:		594		

Thus, the percent of  $\langle 12 \rangle$  foot waves that lasted  $\langle 2 \rangle$  days is  $(594 -9056) \times 100\% = 6.6\%$ . The percent of  $\langle 12 \rangle$  foot waves that lasted  $\langle 2 \rangle$  days is 100% - 6.6% = 93.4%.

Step 2. The percent of waves <12 ft is (T\*/TH) X 100% or (10761-13606) X 100% = 79.1%. Step 3. The answer is 93.4% X 79.1% = 73.9%.

#### APPENDIX F

## COMPARISON OF SOWM WITH OTHER CLIMATOLOGIES

In this section three other sources of wind and wave data are compared to the SOWM hindcast data (hereafter referred to as SOWM) namely: (1) U. S. Navy Marine Climatic Atlas of the World, Volume II, North Pacific Ocean; (1977) (hereafter referred to as SHIP) (2) U. S. Army Pacific Coast Hindcast, Deepwater, Information; (1984) (hereafter referred to as ARMY); and (3) Climatic Summaries for NOAA Data Buoys; (1983) (hereafter referred to as BUOY). Detailed information regarding the origin of data from each of these three sources is contained within each atlas, but a brief summary of each of these data sources follow. additional data has been added to the ARMY and BUOY data. This includes another year of BUOY data, i.e. 1983 data and ARMY data summarized by month (Corson, 1984), as opposed to an annual basis.

The SHIP atlas contains climatic summaries of wind and wave data derived from archived observations of transient ships and Weather Stations (OWS) across the North Pacific Ocean. The summaries are based on data dating back to the nineteenth century, but overwhelming majority of the data comes from the 1950s and 1960s, and early to mid 1970s. wind speed from transient ships is estimated rather than measured, while the OWS winds are measured. Quayle (1974, 1980) has shown that the long-term climatologies from measured winds (particularly at high speeds) at OWS are in fair agreement with estimated winds from transient observations. Cardone (1969)summarizes previous investigations of bias in winds reported by ships using the following formula

$$V_{\rm c} = 2.16 \ V_{\rm o}$$
 (F1)

Where  $\mathbf{U}_{\mathbf{C}}$  is the corrected wind speed and  $\mathbf{U}_{\mathbf{O}}$  is the observed wind speed from a single

observation. The results of Quayle (1980) and Cardone (1969) are not necessarily in disagreement since the results of Quayle's study refer to climatological means and Cardone's study to individual ship observations. On the other hand, it has been generally recognized that wave data climatologies based upon visual ship observations reflect heights that are too low. Quayle and Changery (1982) provide several reasons for this discrepancy.

1. Until July 1963, only the higher wave train was digitized from the ship report. Therefore, to mix pre-July 1963 data with later data in a consistent fashion, one could use only the higher of sea and swell. This, indeed, is procedure by the World the recommended Meteorological Organization (1960). By using only the higher of sea and swell, significant wave height  $H_1/3$  (average height of the highest one-third of all waves present) is underestimated; a better estimate being:

$$H_s = (H^2 sea + H^2 swell)^{1/2}$$
 (F2)

according to Darbyshire and Draper (1963), further elaborated by Jardine (1979), and Jardine and Lathan (1981). In the preparation of Pilot Charts of Monthly Weather Hazards - Waves for the Defense Mapping Agency (In Press) this discrepancy has been found to amount to only a 5% underestimation of the significant wave height. It is possible however, that additional biases are introduced because ship observers sometimes either cannot or do not distinguish between sea and swell waves in their observations.

- 2. A fair-weather bias toward lower waves is sometimes suspected, as ships may try to avoid bad weather (Quayle, 1974). However, since ships often must slow down in storms, more thus will be reported, possibly counteracting the fair-weather bias. Further. winds appear to be relatively more accurate than waves (Quayle, 1980), a situation that "fair-weather complicates simple hypotheses.
- 3. The height of the bridge on a typical ship may be some tens of meters above the sea

servation. The results of Quayle (1980) and done (1969) are not necessarily in sagreement since the results of Quayle's study for to climatological means and Cardone's day to individual ship observations. On the ner hand, it has been generally recognized at wave data climatologies based upon visual ip observations reflect heights that are toow. Quayle and Changery (1982) provide several asons for this discrepancy.

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- 3. The height of the bridge on a typical ip may be some tens of meters above the sea

 $\operatorname{surface},$  thus making waves appear  $\mbox{ smaller }$  than they actually are.

Wave heights in the ARMY summarized for grid points off the west coast of North America and Hawaii. Like the SOWM these data were also derived from a discrete spectral model (Resio, 1981). However, for fetch-limited and duration-limited waves in their early stages of development, Dexter (1974), and Resio and Vincent (1979) indicate that a model such as used in the ARMY may result in significant differences from other discrete spectral models. For example, the SOWM does not use parameterized nonlinear wave growth theory, but the ARMY model does contain such parameterization. The ARMY model was run for the 20-year period 1956-1975 based on reconstructed sea-level pressure fields, initially similar to those used in the SOWM model, but with important modifications in and around extratropical cyclones (U.S. Army Hydraulics Laboratory, 1980; 1982; Corson, These modifications included re-analysis of pressure gradients and storm central pressures using data from the Northern Historical Weather Hemisphere Map National Weather Service (NWS) in order to more accurately define the pressure fields. these reconstructed sea-level pressure fields a quasi-geostrophic wind field is estimated at the geostrophic level, and after consideration of thermal stability and baroclinicity reduced to a level of 64 feet.

Climatic summaries for the BUOY are derived from six NOAA data buoys 46001 through 46006. They provide one of the few sources of measured wave data. Unfortunately, the period of record available for summarization is rather short (generally 1976-1983) with frequent missing observations until about 1980. Of the six buoys available for comparison most are located within a few hundred nautical miles of the North American West Coast. The number of hourly or three-hourly observations at each buoy varies for any given month or buoy but generally is near 4,000 observations for the period of record used in this comparative study. A number of different buoy hulls were used during the period of record. Wind speeds were obtained primarily from the 10-m level, but buoy 46005 had wind

sensors located at the 5-m level during the latter part of this study. Since Dobson (1981) indicates that there is more or less (depending on stability) only about a 5% difference in the wind speeds at these two levels, corrections for height differences were not applied. In the climatological comparisons a 5% difference is too small to readily detect because of other sources of noise, such as differences in the period of record from which the climatologies are derived, and the fact that each point compared has slightly different geographic locations.

Each buoy payload included a strapped down accelerometer and an electronic double integration system. A digital filter called the "Wave Spectrum Analyzer" (WSA) was used to process the output through most of 1979. Although the quality of these data was not as good as had been desired due to a noisy signal and numerous periods of missing data, they have been deemed acceptable to most users (NOAA Data Buoy Office, 1981). Higher quality data were available after 1978 by using a more advanced payload system and a refined spectral system, the "Wave Data Analyzer" (WDA).

Comparisons of the wave period between various atlases have purposely been avoided. Users should be cautioned that the wave periods summarized in the SHIP atlas are associated with the higher of the two wave components, the sea or the swell. In the BUOY atlas, the wave period summarized refers to the average wave period. In this atlas and the ARMY atlas the wave period, as described in Appendix C, is the period associated with the largest variance density in the variance spectrum.

Where possible wave height and wind speed cumulative relative frequencies were calculated for various percentiles: 5%, 20%, 50%, 80% and

95% for each of the mid season months, February, May, August, and November. The percentiles were derived from ogives constructed from the upper limits of the class intervals used in this atlas, the SHIP atlas, and the ARMY atlas. Logarithmic interpolation was used to derive the appropriate wave height or wind speed when the percentiles associated with the upper class limits did not coincide with the desired percentiles. For the BUOY the observed hourly and three-hourly data were used to calculate the derived percentiles.

The results οf the SOWM comparisons of wind speed and wave height for 17 areas in the North Pacific Ocean are depicted in Figs. Fl through F8, respectively. From Figs. Fl through F4 it is readily apparent that there is reasonable agreement between the SOWM and SHIP wind speeds in most areas of the open There are some notable exceptions however, as the SOWM winds are considerably less than the SHIP winds in the proximity of the This discrepancy may be Kuroshio Current. attributed to the underestimation of the intensity and central pressures of rapidly developing extratropical storms and the effects of thermal stratification, particularly during arctic outbreaks. Similar underestimates were also found off the eastern coast of North America. This is another area of wintertime cyclogenesis and thermal instability (U. S. Navy Hindcast Spectral Ocean Wave Model Climatic Atlas: North Atlantic Ocean, 1983). South of approximately 30°N the SOWM and SHIP winds do not agree as closely as they do to areas north of 30°N. In this area there is a tendency for the SOWM winds to be higher than the SHIP winds during the winter and spring months and lower during the summer and fall months.

The SOWM wave heights are shown to be

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The SOWM wave heights are shown to be

significantly higher than SHIP wave heights for nearly all areas and all times of the year (Figs. F5 through F8). They help substantiate the bias toward lower wave heights in the SHIP atlas, sometimes even when the wind field in the SOWM is considerable less (up to 30%) than that observed by ship observations. Pierson (1982) states that despite lower winds, the SOWM often gives higher waves compared to visual estimates. This is at least partially attributed to the processing and observational biases in the SHIP atlas. In areas just off the coastal waters of Asia however, some SOWM wave heights are equal to or lower than those reported in the SHIP atlas. The general characteristics of the wave height comparisons more or less substantiate the underestimation of the wind field proximity of the Kuroshio Current. (1982) also indicates that the errors in the SOWM's wave heights are strongly dependent upon wind speed specification errors. Assuming a simple relation between a fully developed wave spectrum (sea) to the local wind speed (a gross simplification), Pierson (1982) shows that

$$\overline{H}_{1/3} = 1.82 \times 10^{-2} u^2$$
 (F3)

where  $\overline{\rm H}_{1/3}$  is in feet and  $\rm u^2$  is the wind speed in knots. As an example, Table F1 depicts the differences in wave height for the month of November that would be expected if the wind speed as summarized in the SHIP atlas for the location 39N, 153E (Ocean Weather Ship X) was used in Eq. F3 as opposed to the speeds from the SOWM grid point at 39.5N, 153.8E. Of part cular interest is the fact that for approximately the same difference in wind speeds (rows 3 and 4 in Table F2) the difference at a higher wind speed results in larger errors of wave height.

A qualitative summary of the differences between the SOWM and SHIP atlas is given in Table F2 for both the upper 20 percentiles (upper quintiles) and the lower 20 percentiles

TABLE F1

THE EFFECT OF DIFFERENT WIND SPEED ESTIMATES ON THE SIGNIFICAN

				. —	
	WIND SPEED	(kn)			WAVE HEIGH
SOWM	SHIP	SOWM	DIFFERENCE	SOWM	SHIP
39.5 N 153.8 E	39 N 153 E	SHIP	SOWM-SHIP	39.5 N 153.8 E	39 N 153 E
8.4	13.0	0.7	4.6	1.2	3.1
15.5	21.8	0.7	-6.3	4.4	8.6
24.1	31.8	0.8	-7.7	10.6	18.4
32.5	39.9	0.8	-7.4	19.2	29.0

(lower quintiles). Based on Figs. F1 - F4 and Table F2 it is apparent that the wind speeds derived from the SOWM are for the most part reasonably close to those contained in the SHIP atlas, except for areas near the Asian Coast and some areas south of 30°N. Based on the wind field comparisons, the SOWM atlas wave height climatology should be an overall improvement over the SHIP atlas wave climatology in much of the North Pacific. However, in cases where the SOWM input winds are significantly low, the resulting wave heights may not be as high as they should be. This could occur even when the wave heights produced in the SOWM were comparable to those reported in the SHIP atlas. In these instances the wave heights reported in both the SHIP and SOWM atlases might, in fact, underestimate the actual wave height.

Since the ARMY did not contain wind

summaries, comparisons with the available for wave heights only (Figs. F9 through F12). The SOWM and ARMY wave heights are compared using five grid points, four near the coastal waters of the United States Canada and one near the Hawaiian Islands. pattern simple emerges from fairly comparative climatologies. The SOWM heights are approximately 20% higher than the ARMY wave heights in the upper quintiles, but for the lower quintiles they are about 20% to ARMY 50% lower than the heights.Undoubtedly, a large portion of this difference can be attributed to the input wind fields generating the waves (see Appendix B). One exception to this generality is for the grid points near the Hawaiian Islands where the SOWM wave heights are lower than the ARMY wave heights at all percentiles, sometimes by as much as 50%.

TABLE F1

RENT WIND SPEED ESTIMATES ON THE SIGNIFICANT WAVE HEIGHT

) (kn)		WAVE HEIGHT (ft)								
SOWM	DIFFERENCE	SOWM	SHIP	SOWM	DIFFERENCE					
SHIP	SOWM SHIP	39.5 N 153.8 E	39 N 153 E	SHIP	SOWM-SHIP					
0.7	4.6	1.2	3.1	0.4	-1.9					
0.7	-6.3	4.4	8.6	0.5	4.2					
0.8	-7.7	10.6	18.4	0.6	7.8					
0.8	-7.4	19.2	29.0	0.7	-9.8					

ries, comparisons with the SOWM able for wave heights only (Figs. gh F12). The SOWM and ARMY wave heights ompared using five grid points, four near oastal waters of the United States a and one near the Hawaiian Islands. y simple pattern emerges from the rative climatologies. The SOWM wave ts are approximately 20% higher than the wave heights in the upper quintiles, but he lower quintiles they are about 20% to lower than the ARMY ts.Undoubtedly, a large portion of this rence can be attributed to the input wind s generating the waves (see Appendix B). xception to this generality is for the grid s near the Hawaiian Islands where the SOWM heights are lower than the ARMY wave ts at all percentiles, sometimes by as much

Figs. F13 through F16 comparative climatologies between BUOY and data for the winds. Generally, the SOWM wind speeds are higher, by about 20% to 30%, than the BUOY wind speeds during the spring, fall, and winter months at the higher percentiles, generally within 10% of the BUOY speeds at the lower percentiles. During the summer month of August the BUOY winds tend to be 10 to 20% higher than the SOWM winds south of  $50^{\rm O}N$  and nearly equal to the SOWM winds north of 50°N. These wind speed differences have at least to some extent worked their way into the wave height climatologies since the SOWM wave heights during the spring, fall, and winter months are generally 20% to 50% higher for the upper quintiles than those at the NOAA BUOYS (Figs. F17 through F20). During the same seasons for the lower quintiles the SOWM wave heights are usually within 10 to 20% of the BUOY wave

4

TABLE F 2

QUALITATIVE SUMMARY OF DIFFERENCES BETWEEN DATA TYPES IN THE NORTH PACIFIC OCEAN FOR SOWM, ARMY, BUOY, AND SHIP DATA

UPPER 20 PERCENTILE

LOWER 20 PERCENTILE

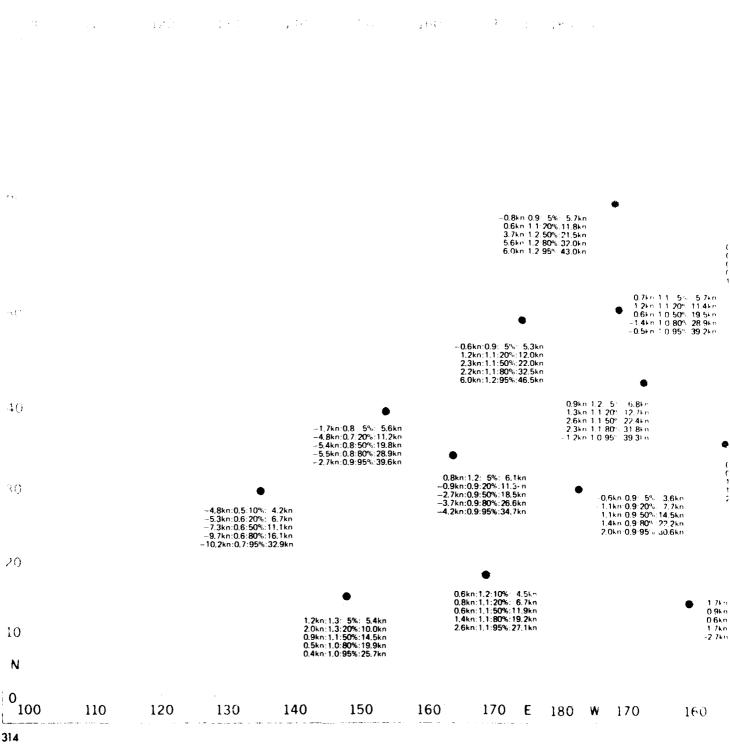
			TIME PERIOD							TIME PERIOD								
AREA	DATA SOURCE	FEB		MAY		AUG		NOV		F	FEB		MAY		AUG		NOV	
	JOOKEL	Wind	Wave	Wind	Wave	Wind	Wave	Wind	Wave	Wind	Wave	Wind	Wave	Wind	Wave	Wind	Wave	
OPEN OCEAN	SOWM	н	н	L	н	н	Н	н	Н	н	<b>,</b> w	М	H	L	L	м	M	
NORTH OF	SHIP	Н	l L	L	L	L	¦ L	н	L	H	l r	Ĺ	Į L	Ĺ	L	M	İF	
30 N	BUOY	l L		Н	L	Н	L	l L	L	L	M	Н	l w l	н	Н	М	į H	
	ARMY	Х	X	X	Χ_	X	_ X	X	X	Х	l x	Х	l x	Х	X	X	X	
	SOWM	н	Ξ.	Н	Н	L	<u> </u>	L	Τ	н	Н	н	H	L	м	н	н	
OPEN OCEAN	SHIP	L	L	L	ן ו	Н	¦ н	Н	L	l L	L	L	lι	Н	M	L	l L	
15 N to 30 N	BUOY	X	¦ x	X	x	X	x	<b>x</b> .	x	×	ļ x ļ	X	l x	Х	Х	X	ļ x	
	ARMY	X	j × ļ	X	X	Х	×	X	×	Х	X	Х	l x	X	X	M M M M M M M M M M M M M M M M M M M	l X	
	SOWM	Н	Н		Н	L	Н	н	W	Н	M	Н	M	м	м	н	M	
PROXIMITY OF	SHIP	н	, L	Н	L	М	м	н	Ł	н		L	۱ ا	н	L	н	ļ [	
NORTH AMERICAN	BUOY	L	M	L	M	н	Ł	L	M	Ĺ	¦ w [	L	M	Ĺ	M	L	M	
WEST COAST	ARMY	X	l M	X	l w	х	Н	X	н	X	Н	X	iн	Х	н	×	н	
	SOWM	L	Н	l	Н	L	I	L	Н	ι	н	L	н	L	ι	l	Н	
PROXIMITY OF	SHIP	н	ļ L	Н	i ر	н	lι	н	ĺιΙ	н	L	Н	L	нΫ	н	Н	:  -	
JAPAN CURRENT	BUOY	X	l x	X	X	Х	Х	Х	х	×	×	X	×	×	X	Х	j x [	
	ARMY	X	X	X	x	X	Х	X	_ x	Х	X	Х	X	Х	X	X	X	

L Low M Middle H High X Unknown at present

heights. During the summer month of August the SOWM wave heights tend to be higher than the BUOY wave heights north of  $50^{\rm O}N$  and somewhat lower than the BUOY wave heights south of  $50^{\rm O}N$ .

It cannot be overemphasized that the data sources in Table F-2 do not include matching years of data. In the BUOY climatologies data from the late 70's and early 80's do not overlap the years used in the SOWM atlas (late 60's to mid 70's) or the ARMY atlas (late 50's to mid 70's). It would be incorrect to assume that the SOWM or ARMY climatologies should exactly reproduce the BUOY climatologies.

### FIG. F1 DIFFERENCE (SOWM-SHIP) AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP 'PERCENTILES AND THEIR ASSOCIATED WIND SPEEDS



# TIOS (SOWM/SHIP) OF SOWM AND SHIP WIND SPEEDS FOR SELECTED SOWM TED WIND SPEEDS

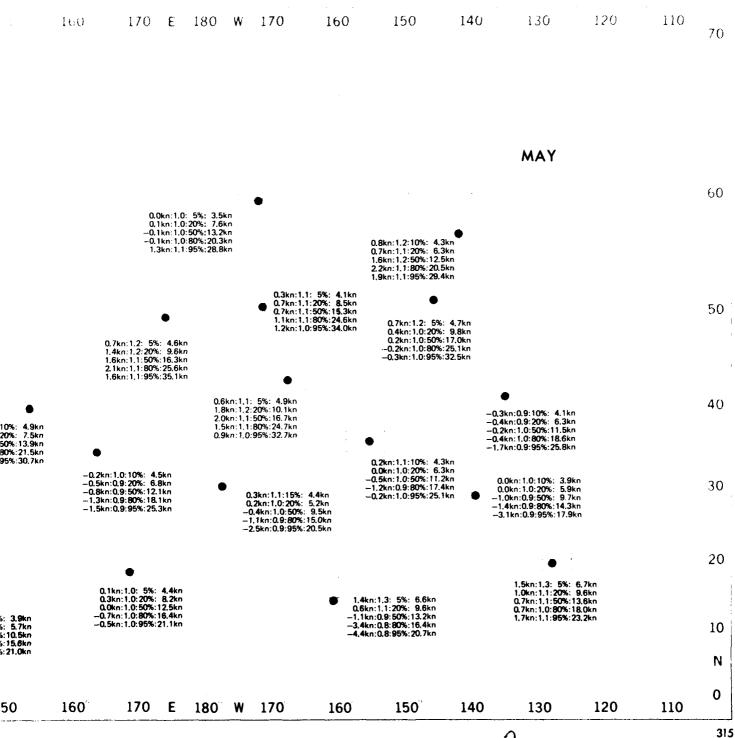
 $(2.11)^{1/2} = (2.11)^{1/2} = (2.0)^{1/2}$ 

	FEBRUARY
0.8kn 0.9 5% 5.7kn 0.6kn 1.1.20% 11.8kn 3.7kn 1.2.50% 21.5kn 5.6kn 1.2.80% 32.0kn 6.0kn 1.2.95% 43.0kn	-0.1kn 1.0 5% 4.0kn -0.2kn 1.0 20% 9.2kn -0.4kn 1.0 50% 17.0kn
0.7kn:1.1: 5%: 1,2kn:1.1:20%:1 0.6kn.1.0:50%:1 -1.4kn:1.0:80%:2 -0.5kn:1.0:95%:3  0.6kn 0.9 5% 5,3kn 1.2kn 1.1 20% 12 0kn 2.3kn 1.1 50% 22 0kn 2.2kn 1.1 80% 32 5kn 6,0kn 1.2 95% 46 5kn	11.4kn 19.5kn 50 28.9kn 31.1.10.5%
0.9kn 1,2 - 5% - 6.8kn 1.3kn 1.1.20% 12.7kn 2.6kn 1.1.50% 22.4kn 2.3kn 1.1.80% 31.8kn - 1.2kn 1.0.95% 39.3kn	● 4 ()  0.0kn:1,0: 5%: 4.8kn 1,3kn:1.1:20%:10.5kn 2.7kn:1.2:50%:18.8kn 3.7kn:1.2:80%:27.2kn 3.5kn:1.1:95%:36.3kn
0.8kn 1.2 5°. 6.1kn 0.9kn 0.9 20°. 11.3kn 2.7kn 0.9 50°. 18.5kn -3.7kn 0.9 80°. 26.6kn -4.2kn 0.9.95°. 34.7kn 1.1kn 0.9 20°. 7.7kn 1.1kn 0.9 50°. 14.5kn 1.4kn 0.9 80°. 22.2kn 2.0kn 0.9.95°. 30.6kn	-0.8kn 0.8: 5%: 4.2kn   0.7kn 1.1:20%:10.0kn   1.8kn 1.1:50%:18.3kn   1.5kn 1.1:80%:26.9kn   2.9kn 1.1:95%:36.4kn    -0.6kn:0.9:20%: 7.5kn   -2.0kn:0.9:50%:12.6kn   3.0kn:0.9:80%:17.9kn   -2.0kn:0.8:95%:25.5kn
•	-0.7kn:0.9: 5%: 4.1kn
0.6kn 1.2 10% - 4.5kn 0.8kn 1.1.20% - 6.7kn 0.6kn 1.1.50% -11.9kn 1.4kn 1.1.80% -19.2kn 2.6kn 1.1.95% -27.1kn	-0.7kn:0.9: 5%: 4.1kn
	N
160 170 E 180 W 170 16	60 150 140 130 120 110 <sup>0</sup>

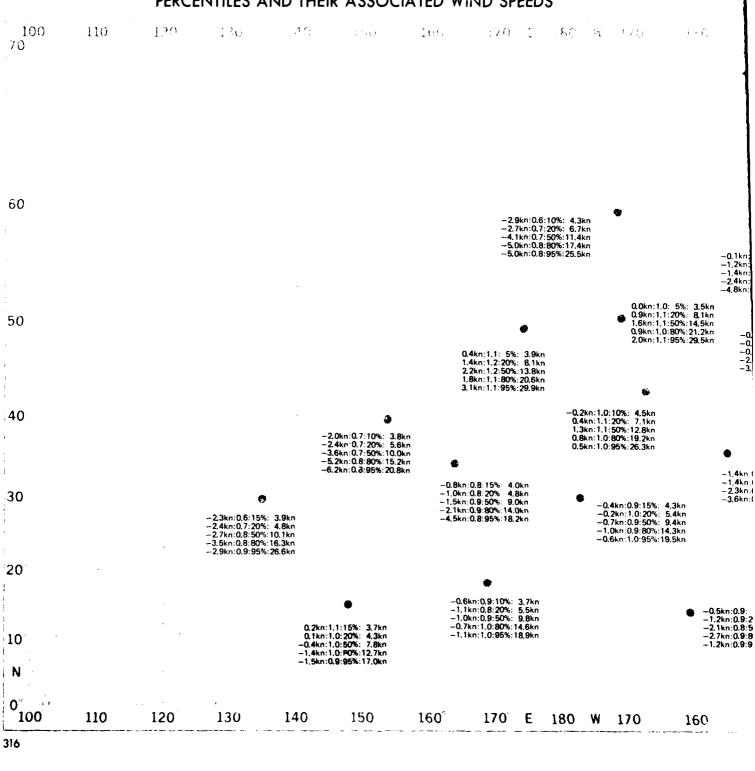
### FIG. F2 DIFFERENCE (SOWM-SHIP) AND RATIOS (SOWM/SHIP)

	110.12	PERCEN	NTILES AN	MW-SUIL	ASSOCI	ATED W	(SOWM/ VIND SPI	EEDS	2) OF 5	SC	)WM A	ND SHIF
100 70	110	120	130	140	150	160	170	Ε	180	W	170	160
												•
60						i						
00						r	0.0k	:n:1,0: 5	5%: 3.5ki )%: 7.6ki	n	•	
							~0.1k ~0.1k	:n:1.0:50 :n:1.0:80	)%: 13.2ki )%: 20.3ki 5%: 28.8ki	n n		
:											0.3kn:1,	1: 5%: 4,1kn
}50 :				•							0.7kn:1. 1,1kn:1.	1:20%: 8,5kn 1:50%:15,3kn 1:80%:24,6kn 0:95%:34,0kn
							0.7kn:1.2: 5%: 1,4kn:1.2:20%: 1,6kn:1.1:50%:1 2.1kn:1.1:80%:2 1,6kn:1.1:95%:3	6.3kn 5.6kn				
40				•	•				0.6ki 1.8ki	n:1.1: 5 n:1.2:20	5%: 4.9kn 1%:10.1kn 1%:16.7kn	
				–2.1kn:0 –2.2kn:0 –1.9kn:0	3.7:10%: 4.9kn 3.8:20%: 7.5kn 3.9:50%:13.9kn 3.9:80%:21.5kn	•			I.SKI	า: เ. เ : ซบ	1%:16,7kn 1%:24,7kn 1%:32,7kn	(
30			•	-0.8kn:1	.0:95%:30.7kn	~0.5kr	n:1,0:10%: 4.5ki n:0,9:20%: 6.8ki n:0,9:50%:12.1ki	ก				<u>.</u>
		_	2.6kn:0.6:15%: 4,2 3.1kn:0.6:20%: 5,6 4.1kn:0.7:50%:10,2 5.3kn:0.8:80%:15,7	0kn 2kn		-1.3kr	n:0,9:80%:18.1ki n:0,9:95%:25,3ki	n		0.2k -0.4i -1.1i	in:1,1:15%; in:1,0:20%; kn:1,0:50%; kn:0,9:80%; kn:0,9:95%;	5.2kn 9.5kn 15.0kn
20		-	8.4kn:0,7:95%:21,t	5kn			( <u>.</u>					
					<b>P</b> .i	0.3	lkn:1.0: 5%: 4. 3kn:1.0:20%: 8. 3kn:1.0:50%:12.!	2kn				1.4k
10				-1,2kn:0,8:1 -1,4kn:0,8:2 -0,6kn:1,0:5 0,0kn:1,0:5	20%: 5.7kn 50%:10.5kn 90%:15.6kn	-0.7	7kn:1.0:80%:16. 5kn:1.0:95%:21.	4kn				Q.6k -1.1k -3.4k -4.4k
N				0,7kn:1,0:£	95%: 21,0kn							
0100	110	120	130	140°	150°	160°	170 (	E 1	80 1	W 1	70	160

#### AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP WIND SPEEDS FOR SELECTED SOWM SSOCIATED WIND SPEEDS



#### FIG. F3 DIFFERENCE (SOWM-SHIP) AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP W PERCENTILES AND THEIR ASSOCIATED WIND SPEEDS



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### ID RATIOS (SOWM/SHIP) OF SOWM AND SHIP WIND SPEEDS FOR SELECTED SOWM OCIATED WIND SPEEDS

:70 180 170 160 150 140 130 **AUGUST** 60 -2.9kn:0.6:10%: 4.3kn -2.7kn:0.7:20%: 6.7kn -4.1kn:0.7:50%:11.4kn -5.0kn:0.8:80%:17.4kn -0.1kn:1.0:10%: 3.7kn -1.2kn:0.8:20%: 5.4kn -1.4kn:0.9:50%: 9.7kn -2.4kn:0.9:80%:15.3kn -5.0kn:0.8:95%:25.5kn -4.8kn: 0.8:95%: 21.0kn 0.0kn:1.0: 5%: 3.5kn 0.9kn:1,1:20%: 8.1kn 1.6kn:1,1:50%:14.5kn 0.9kn:1.0:80%:21,2kn 2.0kn:1,1:95%:29,5kn 50 -0.5kn:0.9:10%: 4.9kn -0.4kn:1.0:20%: 7.9kn -0.7kn:1.0:50%:14.1kn -2.4kn:0.9:80%:20.3kn -3.5kn:0.9:95%:27.0kn 0.4kn:1.1: 5%: 3.9kn 1.4kn:1.2:20%: 8.1kn 2.2kn:1.2:50%:13.8kn 1.8kn:1.1:80%:20.6kn 3.1kn:1.1:95%:29.9kn -0.2kn:1.0:10%: 4,5kn 0.4kn:1.1:20%: 7.1kn 1.3kn:1.1:50%:12.8kn 0.8kn:1.0:80%:19.2kn 40 -0.7kn:0.9:15%: 3.9kn -0.8kn:0.9:20%: 4.8kn -0.8kn:0.9:50%: 8.9kn -1.9kn:0.9:80%:13.7kn 0.5kn:1.0:95%:26.3kn -1.4kn:0.7:25%: 4.0kn -1.4kn:0.8:50%: 7.6kn -2.3kn:0.8:80%:12.1kn -3.6kn:0.8:95%:16.0kn -0.8kn:0.8:15%: 4.0kn -1.0kn:0.8:20%: 4.8kn -1.5kn:0.9:50%: 9.0kn -2.1kn:0.9:80%:14.0kn 0.3kn:1.1:10%: 3.8kn 0.3kn:1.1:20%: 5.9kn -0.7kn:0.9:50%:10.0kn -0.9kn:0.9:80%:14.6kn -1.7kn:0.9:95%:18.6kn 30 -0.4kn:0.9:15%: 4.3kn -0.2kn:1.0:20%: 5.4kn -0.7kn:0.9:50%: 9.4kn -1.0kn:0.9:80%:14.3kn 4,5kn:0,8:95%:18,2kn -0.6kn: 1.0:95%: 19.5kn 20 0.1kn:1.0: 5%: 4,2kn 0.5kn:1.1:20%: 8.0kn 0.9kn:1.1:50%:12.7kn 0.5kn:1.0:80%:17.6kn -0.6kn:0.9:10%: 3.7kn -1.1kn:0.8:20%: 5.5kn -1.0kn:0.9:50%: 9.8kn -0.7kn:1.0:80%:14.6kn -1.1kn:1.0:95%:18.9kn -0.5kn:0.9: 5%: 4.5kn -1.2kn:0.9:20%: 7.6kn -2.1kn:0.8:50%:11,3kn -2.7kn:0.9:80%:15,3kn 4.2kn:1.2:95%:25.4kn 10 -1.2kn:0.9:95%:20.1kn N 0 160° 170 E 180 170 150

)%: 3,8kn )%: 5,6kn )%:10,0kn )%:15,2kn j%:20,8kn

3kn Bkn 7kn Okn

W

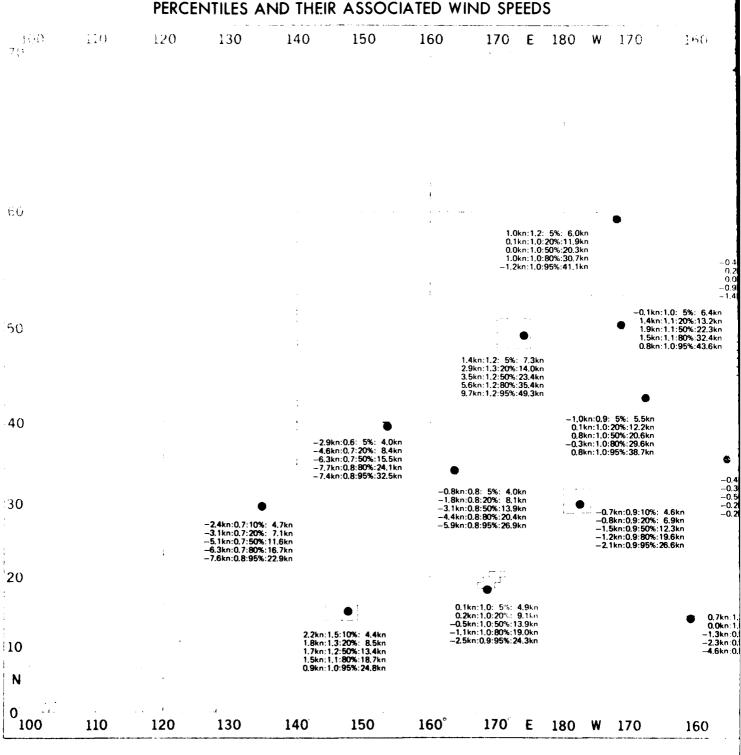
160

130

120

110

### FIG. F4 DIFFERENCE (SOWM-SHIP) AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP V PERCENTILES AND THEIR ASSOCIATED WIND SPEEDS



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## ATIOS (SOWM/SHIP) OF SOWM AND SHIP WIND SPEEDS FOR SELECTED SOWM ATED WIND SPEEDS

160	170	E	180	W	170	160	150	140	130	120	110	70
									NOVEMBE	R		
	1.0k	.n:1,2:	5%: 6.0k	n	•			•				60
	0.0k 1.0k	n: 1.0:5 n: 1.0:8	20%:11.9ki 60%:20.3ki 80%:30.7ki 95%:41.1kr	n n			0.4km:0.9: 5%: 4.6i 0.2kn:1.0:20%: 9.5i 0.0kn:1.0:50%:17.1i 0.9kn:1.0:80%:26.6i 1.4kn:1.0:95%:37.9i	kn kn kn				
2.9	kn:1.2: 5%: kn:1,3:20%:1	4.0kn			1.4kn 1.9kn 1.5kn	:1.0: 5%: 6.4kn :1.1:20%:13.2kn :1.1:50%:22.3kn :1.1:80%:32.4kn :1.0:95%:43.6kn	0.4kn:0.9: 5%: 0.9kn:0.9:20%: 1.5kn:0.9:50%: 1.9kn:0.9:80%:	13.5kn 22.6kn 31.6kn				50
5.6	kn:1,2:50%;2 kn:1,2:80%;3 kn:1,2:95%;4	5.4kn	-1.0k	:n: <b>0.9</b> :	● 5%: 5.5kn		~1,4kn:1.0:95%;	42.6kn	•			40
•			0,1k 0.8k -0.3k	in: 1,0:: in: 1,0:: in: 1,0::	20%:12.2kn 50%:20.6kn 80%:29.6kn 95%:38.7kn				0.2kn:1.0: 5%: 4.6kn 0.5kn:1.1:20%: 9.3kn 0.7kn:1.0:50%:16.7kn 0.7kn:1.0:80%:25.2kn 0.6kn:1.0:95%:33.4kn			40
~ 1,8kn:0 ~3,1kn:0 ~4,4kn:0	.8: 5%: 4.0k .8:20%: 8.1k .8:50%:13.9k .8:80%:20.4k .8:95%:26.9k	n n n	. •	-0.8 -1.5 -1.2	7kn:0.9:10%: 8kn:0.9:20%: 5kn:0.9:50%: 2kn:0.9:80%: 1kn:0.9:95%:	4.6kn	0.4kn:0.9: 5%: 4.0 0.5kn:1.0:20%: 8.4 0.5kn:1.0:50%:14:9 0.2kn:1.0:80%:23.0 0.2kn:1.0:95%:32.3	kn kn kn kn 🌰	0.2kn:1.0:10%: 4.1k 0.7kn:0.9:20%: 6.0k 1.6kn:0.9:50%:10.5k 2.9kn:0.8:80%:15.5k 5.4kn:0.8:95%:20.4k	n n n	·	30
	•	•							-0.4kn:0.9: 5%:	5.4kn		20
0.2k: -0.5k: -1.1k:	n:1.0: 5%: 4 n:1.0:20%: 9 n:1.0:50%:13 n:1.0:80%:19 n:0.9:95%:24	,11 n ,9kn , <b>0</b> kn				0.0kr -1.3kr	i:1,2: 5%: 5,3kn i:1,0:20%: 8,7kn i:0,9:50%:13,1kn i:0,9:80%:17,8kn i:0,8:95%:21,3kn		-0.1kn:1,0:20%: -0.7kn:1,0:50%: -1.7kn:0.9:80%: -1.7kn:0.9:95%:	9.1kn 13.3kn 17.4kn		10
												N
160°	170	E	180	W	170	160	150	140	130	120	110	0
								9				317

### FIG. F5 DIFFERENCE (SOWM-SHIP) AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP WA PERCENTILES AND THEIR ASSOCIATED WAVE HEIGHTS

10	120	130	140	150	3 ( 25)	196	r	.00				
				190	160	170	E	180	₩	170	, follo	
						3.4	4ft: 2,3:1	5%: 6.1	ft	•		
						7.6 10.6 13.6	0ft: 2.2:5 6ft: 2.1:8 6ft: 1.8:9	:0%: 7.1 60%:13.0 80%:20.5 95%:29.8	ft ft ft			1.8 4.9 7.4
			•							3.6ft:2.4 5.8ft:2.5	: 5%: 6.2ft	10.7 13.7
						4.6ft:2.6: 5%: 6.5ft:2.4:20%:	7.4ft			7.8ft:1.6 12.6ft:2.	:80%:14,911 :80%:21,3ft ::95%:28,2ft	
						8.3ft:2.0:50%: 11.1ft:1.8:80%: 11.5ft:1.5:95%:	17.0ft 25.3ft 35.6ft			•		
			, 2,4ft:1 2,3ft:1	.7: 5%: 5.8ft .4:20%: 8.9ft				3.7 4.9 6.1 6.8 5.0	7ft:2.3: 9ft:1.8:2  ft:1.6:5  ft:1.4:8  ft:1.2:9	5%: 6.6ft 0%:10.7ft 0%:15.9ft 0%:22.4ft 5%:29.1ft		
			3.5ft:1 3.6ft:1	.2:80%:19,8ft .2:95%:27,4ft	0.8	) 311:1,2: 5%: 4.81 31:1,20%: 7.81	ft ft	_				1.0° 2.9° 4.1
	-	-0.3ft:0.9:25%: 3 -0.3ft:0.9:50%: 5 -0.1ft:1.0:80%: 8	1.2ft i.0ft 1.6ft		1.2 2.0 0.8	2ft: 1, 1:50%: 11.5( 0ft: 1, 1:80%: 17.2( 3ft: 1,0:95%: 24.0(	ft ft ft		0. 1, 2. 3. 2	9ft: 1,3: 10%: 5ft: 1,4: 20%: 3ft: 1,4: 50%: 2ft: 1,3: 80%: 1 2ft: 1,1: 95%: 1	3.6ft 4.9ft 8.9ft 3.8ft 9.5ft	5.9 6.2
		1.4ft:1.1:95%:13	i.8ft			•						
				•	1	1.3ft:1,2:50%: 6.	.7ft				_ 0	4ft:1,1 2ft.1,1
			1.0ft: 1.4:1 1.6ft: 1.5:2 2.4ft: 1.5:5 2.8ft: 1.4:8 3.6ft: 1.3:9	10%: 3.611 20%: 4.7ft 60%: 7.6ft 90%:10.7ft 95%:14.2ft	3	3.5ft:1.3:95%:15.	9ft				0. 1. 2.	41: 0.9 0ft: 0.9 3ft: 0.8
		· c										
10			140	150	160°	170	E	180	W	170	160	
	10		1,411: 1,1:95%:13	-0.3ft:0.9:25%: 3.2ft -0.3ft:0.9:50%: 5.0ft 0.1ft:1.0:80%: 8.6ft 1.4ft:1.1:95%:13.8ft  1.0ft:1.4: 1.6ft:1.5:2 2.4ft:1.5:5 2.8ft:1.3:5	1.4ft: 1.1:95%:13.8ft  1.0ft: 1.4:10%: 3.6ft 1.6ft: 1.5:20%: 4.7ft 2.4ft: 1.5:50%: 7.6ft 2.8ft: 1.4:80%:10.7ft 3.6ft: 1.3:95%: 14.2ft	2.4ft:1.7: 5%: 5.8ft 2.3ft:1.4:20%: 8.9ft 2.9ft:1.3:50%:13.2ft 3.5ft:1.2:80%:19.8ft 3.6ft:1.2:95%:27.4ft  0.8 0.8 1.7 -0.3ft:0.9:50%: 5.0ft 0.1ft:1.0:80%: 8.6ft 1.4ft:1.1:95%:13.8ft  1.0ft:1.4:10%: 3.6ft 1.6ft:1.5:20%: 4.7ft 2.4ft:1.5:50%: 7.6ft 2.8ft:1.4:80%:10.7ft 3.6ft:1.3:95%:14.2ft	2.4ft:1.7:.5%: 5.8ft 2.3ft:1.4:20%: 8.9ft 2.3ft:1.4:20%: 8.9ft 2.3ft:1.2:55%: 13.2ft 3.5ft:1.2:80%: 19.8ft 3.6ft:1.2:95%:27.4ft  -0.3ft:0.9:25%: 3.2ft -0.3ft:0.9:50%: 5.0ft 0.1ft:1.0:80%: 8.6ft 1.4ft:1.1:95%: 13.8ft  1.0ft:1.4:10%: 3.6ft 1.6ft:1.5:20%: 4.7ft 2.4ft:1.5:50%: 17.6ft 2.4ft:1.5:50%: 17.6ft 2.4ft:1.5:50%: 17.6ft 2.4ft:1.5:50%: 13.8ft	7.0ft:2.2 i 10.6ft:2.1i 13.6ft:1.8:5  4.6ft:2.6: 5%: 7.4ft 6.5ft:2.4:20%:17.3ft 8.5ft:2.4:20%:17.3ft 11.1ft:1.8:80%:25.3ft 11.5ft:1.5:95%:35.6ft 11.5ft:1.5:95%:35.6ft 11.5ft:1.5:95%:35.6ft 11.5ft:1.5:95%:35.6ft 11.5ft:1.5:95%:35.6ft 11.2:95%:27.4ft 0.8ft:1.2:95%:27.4ft 0.8ft:1.2:95%:27.4ft 0.8ft:1.2:95%:27.4ft 0.8ft:1.2:95%:27.4ft 0.8ft:1.2:95%:24.0ft 0.8ft:1.2:50%:6.7ft 1.4ft:1.1:95%:13.8ft 1.4ft:1.1:95%:13.8ft 1.4ft:1.1:95%:13.8ft 1.3ft:1.2:50%:6.7ft 1.6ft:1.5:20%:4.7ft 1.6ft:1.6ft	7.0.ft.2.250%:22.8  13.6ft:1.8:95%:22.8  4.6ft:2.6: 5%: 7.4ft 6.5ft:2.4:20%:11.3ft 8.3ft:2.0:50%:17.0ft 11.1ft:1.8:00%:25.3ft 11.5ft:1.5:95%:35.6ft  2.4ft:1.7: 5%: 5.8ft 2.3ft:1.4:20%: 8.9ft 2.3ft:1.2:80%:19.8ft 3.6ft:1.2:80%:19.8ft 3.6ft:1.2:95%:27.4ft 0.8ft:1.2:5%: 4.8ft 0.8ft:1.2:5%: 4.8ft 1.2ft:1.55%:17.8ft 0.8ft:1.1:55%:17.8ft 1.2ft:1.55%:13.8ft  0.8ft:1.2:5%: 4.8ft 1.2ft:1.55%:3.4ft 0.8ft:1.2:5%: 3.4ft 0.9ft:1.3:0%: 3.4ft 0.9ft:1.3:0%:3.8ft 1.3ft:1.2:50%: 6.7ft 1.6ft:1.5:20%: 4.7ft 2.4ft:1.550%: 7.6ft 2.8ft:1.4:90%:10.7ft 3.5ft:1.3:95%:15.9ft 2.4ft:1.3:95%:15.9ft 2.4ft:1.3:95%:10.7ft 3.5ft:1.3:95%:15.9ft 2.4ft:1.3:95%:10.7ft 3.6ft:1.3:95%:14.2ft	6.5ft:2.4:20%:11.3ft 8.3ft:2.0:50%:17.0ft 11.1ft:1.8:80%:25.3ft 11.5ft:1.5:95%:35.6ft  2.4ft:1.7: 5%: 5.8ft 2.3tt:1.4:20%: 8.9ft 2.9tt:1.3:50%:32.ft 3.5ft:1.2:80%:19.8ft 3.6ft:1.2:95%:27.4ft  -0.3ft:0.9:25%: 3.2ft -0.3ft:0.9:50%: 5.0ft 0.1ft:1.0:95%: 23.6ft 1.4ft:1.1:95%:13.8ft  1.0ft:1.4:10%: 3.6ft 1.6ft:1.5:20%: 4.7ft 2.4ft:1.5:20%: 4.7ft 2.4ft:1.5:20%: 4.7ft 2.4ft:1.5:20%: 7.6ft 2.8ft:1.4:80%:10.7ft 3.6ft:1.3:95%:14.2ft	7.01:2.25%:13.0ft 10.61:1.8:95%:29.8ft  3.6ft:2.6  - 5.8ft:2.5  - 7.2ft:3  - 8.8ft:2.5  - 8.8ft:3  - 8.8ft:3.2 5%: 6.8ft  - 8.8ft:3.2 5%: 4.8ft  - 8.8ft:3.2 5%: 4.8ft  - 9.8ft:3.2 5%: 4.8ft	7.0ft:22.25%:180%:20.5ft 13.6ft.1.8.95%:29.8ft  3.6ft:24.5%:6.2ft 5.8ft:25.20%:9.8ft 7.2ft.19.50%:14.9ft 6.6ft:24.5%:7.4ft 6.6ft:24.5%:7.4ft 6.6ft:24.5%:13.9ft 12.6ft:21.95%:28.2ft 12.6ft:21.95%:28.2ft 12.6ft:23.5%:13.9ft 11.5ft:15.95%:35.6ft  2.4ft:17.5%:5.8ft 2.3ft:14.20%:89ft 2.3ft:14.20%:89ft 2.3ft:14.20%:89ft 3.6ft:12.95%:27.4ft 0.8ft:1.1.20%:7.8ft 1.2ft:1.1.50%:11.5ft 0.8ft:1.1.20%:7.8ft 1.2ft:1.1.50%:11.5ft 0.8ft:1.1.20%:7.8ft 1.2ft:1.1.50%:11.5ft 0.8ft:1.1.20%:7.8ft 1.2ft:1.1.50%:11.5ft 0.8ft:1.1.20%:8.9ft 3.2ft:1.3.8ft 1.4ft:1.1.95%:13.8ft 1.6ft:15.20%:4.9ft 0.8ft:1.3.15%:3.4ft 0.8ft:1.3.15

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### AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP WAVE HEIGHTS FOR SELECTED SOWM ASSOCIATED WAVE HEIGHTS

170

:60

145()

140

130

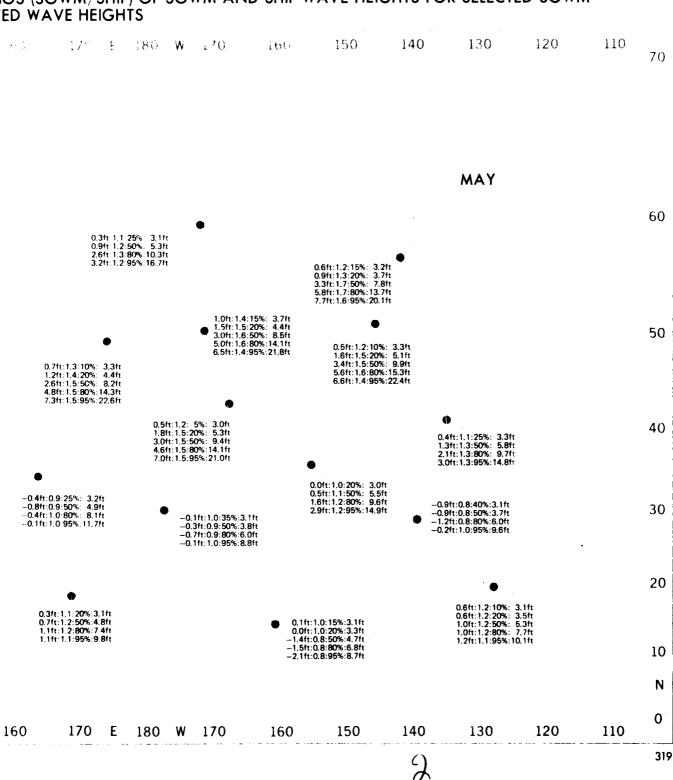
170 E 180

**FEBRUARY** 3.4ft: 2.3: 15%: 6.1ft 4.0ft: 2.3: 20%: 7.1ft 7.0ft: 2.2: 50%: 13.0ft 10.6ft: 2.1: 80%: 20.5ft 1.8ft:1.7: 5%: 4.4ft 4.9ft:2.2:20%: 8.9ft 7.4ft:2.0:50%:14.5ft 10.7ft:1.9:80%:22.2ft 13.7ft:1.7:95%:32.1ft 13.6ft: 1.8:95%; 29.8ft 3.6ft:2.4: 5%: 6,2ft 5.8ft:2.5:20%: 9.8ft 7.2ft:1.9:50%:14,9ft 7.8ft:1.6:80%:21.3ft 12.6ft:2.1:95%:28.2ft 3.4ft:2,2: 5%: 6.3ft 4.1ft:1.7:20%: 9.9ft 7.1ft:1.8:50%:16.2ft 9.3ft:1.6:80%:24.0ft 11.7ft:1.5:95%:33.3ft 4.6ft: 2.6: 5% 7.4ft 6.5ft: 2.4: 20%: 11.3ft 8.3ft: 2.0:50%: 17.0ft 11, 1ft. 1,8:80%:25,3ft 11.5ft. 1,5:95%:35.6ft 3.7ft:2.3: 5%: 6.6ft 4.9ft:1.8:20%:10.7ft 6.1ft:1.6:50%:15.9ft 6.8ft:1.4:80%:22.4ft 5.0ft:1.2:95%:29.1ft 1.7ft:1.6:10%: 4.5ft 3.1ft:1.8:20%: 6.8ft 5.7ft:1.9:50%:12.4ft 8.9ft:1.9:80%:18.4ft 9.9ft:1.7:95%:25.2ft 5.8ft 8.9ft 4 20° 3:50% 13.2ft 2:80% 19.8ft 2:95% 27.4ft 1.0ft:1.4: 5%: 3.6ft 2.9ft:1.7:20%: 6.9ft 4.1ft:1.6:50%:11.6ft 5.9ft:1.5:80%:17.7ft 6.2ft:1.3:95%:25.2ft -0.4ft\*0.9:15%: 3.2ft -0.6ft:0.9:20%: 3.5ft -0.7ft:0.9:50%: 6.2ft 0.6ft:1.1:80%:10.3ft 1.7ft\*1.1:95%:15.0ft 0.8ft 1.2: 5%: 4.8ft 0.8ft 1.1:20%: 7.8ft 1.2ft:1.1:50%:11.5ft 2.0ft:1.1:80%:17.2ft 30 0.9ft:1.3:10%: 3.6ft 1.5ft:1.4:20%: 4.9ft 2.3ft:1.4:50%: 8.9ft 3.2ft:1.3:80%:13.8ft 2.2ft:1.1:95%:19.5ft 0.8ft:1.0:95%:24.0ft 20 0.3ft:1.1:15%: 3.1ft 0.4ft:1.1:20%: 3.4ft 1.3ft:1.3:50%: 5.9ft 1.4ft:1.2:80%: 8.8ft 0.8ft:1.3:15% - 3.4ft 0.9ft:1.3:20%: 3.8ft 1.3ft:1.2:50%: 6.7ft 2.2ft:1.3:80%:10.9ft 3.5ft:1.3:95%:15.9ft 0.4(t:1,1:10%: 3.2ft 0.2ft:1.1:20%: 3.7ft -0.4ft:0.9:50%: 6.1ft -1.0ft:0.9:80%: 8.5ft -2.3ft:0.8:95%:11.0ft 3.6ft 4.7ft 7.6ft 10.7ft 14.2ft 10 Ν 0 180 W 150 160 170 Ε 170 160 150 140 130 120 110

# FIG. F6 DIFFERENCE (SOWM-SHIP) AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP PERCENTILES AND THEIR ASSOCIATED WAVE HEIGHTS

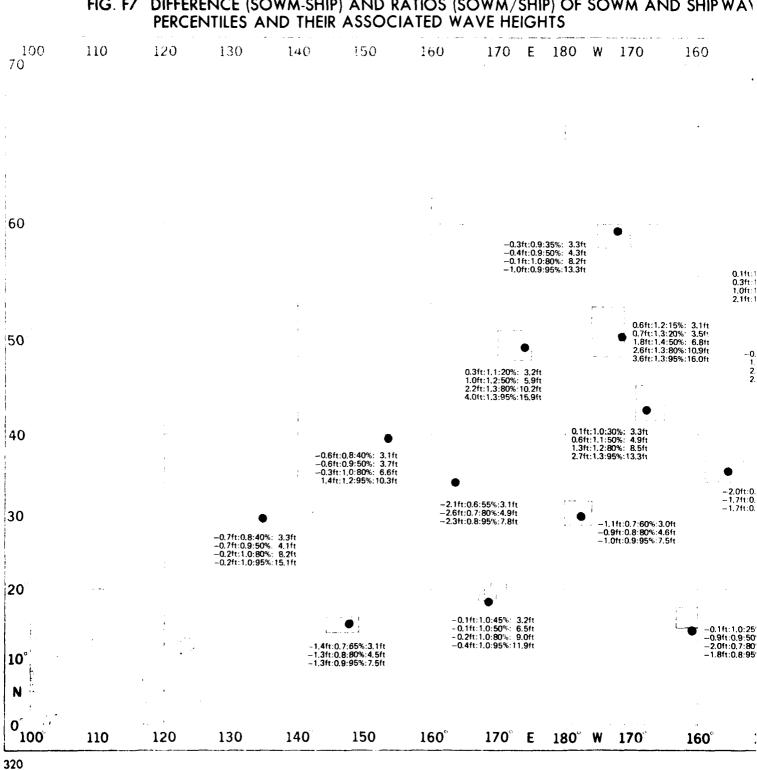
. . . . 1111 130 140 150 170 E 180 .70 0.3ft:1.1:25%: 3.1ft 0.9ft:1.2:50%: 5.3ft 2.6ft:1.3:80%:10.3ft 3.2ft:1.2:95%:16.7ft 1.0ft:1.4:15%: 3.7ft 1.5ft:1.5:20%: 4.4ft 3.0ft:1.6:50%: 8.5ft 5.0ft:1.6:80%:14.1ft 6.5ft:1.4:95%:21.8ft  ${}^{i}y^{\cdot,\cdot}$ 0.7ft:1.3:10%: 3.3ft 1.2ft:1.4:20%: 4.4ft 2.6ft:1.5:50%: 8.2ft 4.8ft:1.5:80%:14.3ft 7.3ft:1.5:95%:22.6ft 40 0.5ft:1.2: 5%: 3.0ft 1.8ft:1.5:20%: 5.3ft 3.0ft:1.5:50%: 9.4ft 4.6ft:1.5:80%:14.1ft 7.0ft:1.5:95%:21.0ft 0.8ft:1.3:20%: 3.5ft 2.3ft:1.5:50%: 6.9ft 3.3ft:1.4:80%:11.5ft 3.8ft:1.3:95%:16.2ft -0.4ft·0 1:25%: 3.2ft -0.8/( 0.3):50%: 4.9ft -0.4ft 13:80%: 8.1ft -0.1ft:1.0:95%:11.7ft 30 -0.1ft:1.0:35%:3.1ft -0.3ft:0.9:50%:3.8ft -0.7ft:0.9:80%:6.0ft -0.1ft:1.0:95%:8.8ft -0.6ft:0.8:40%: 3.2ft -0.6ft:0.9:50%: 3.8ft -0.5ft:0.9:80%: 6.7ft 0.2ft:1,0:95%:10.3ft 20 0.3ft:1.1:20%:3.1ft 0.7ft:1.2:50%:4.8ft 1.1ft:1.2:80%:7.4ft 1.1ft:1.1:95%:9.8ft 0.3ft:1.1.30%:3.1ft 0.4ft:1.1:50%:4.1ft 1.0ft:1.2:80%:6.6ft 1.3ft:1.2:95%:9.8ft 16 Ν 100 110 120 130 140 150 160 170 Ε 180 160

### RATIOS (SOWM/SHIP) OF SOWM AND SHIP WAVE HEIGHTS FOR SELECTED SOWM CIATED WAVE HEIGHTS



### FIG. F7 DIFFERENCE (SOWM-SHIP) AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP WAY

ľ



### RATIOS (SOWM/SHIP) OF SOWM AND SHIP WAVE HEIGHTS FOR SELECTED SOWM CIATED WAVE HEIGHTS

170 E 180 W 170 100 160 150 140 130 120 110 70 **AUGUST** 60 -0.3ft:0.9:35%: 3.3ft -0.4ft:0.9:50%: 4.3ft -0.1ft:1.0:80%: 8.2ft -1.0ft:0.9:95%:13.3ft 0.1ft:1.0:30%: 3.2ft 0.3ft:1.0:50%: 4.7ft 1.0ft:1.1:80%: 8.2ft 2.1ft:1.2:95%:11.8ft 0.6ft:1.2:15%: 3.1ft 0.7ft:1.3:20%: 3.5ft 1.8ft:1.4:50%: 6.8ft 2.6ft:1.3:80%:10.9ft 3.6ft:1.3:95%:16.0ft 50 -0.2ft:0.9:25%: 3.3ft 1.1ft:1.2:50%: 6.5ft 2.0ft:1.2:80%:10.4ft 2.4ft:1.2:95%:14.8ft 0.3ft 1.1:20%; 3.2ft 1.0ft:1.2:50%; 5.9ft 2.2ft:1.3:80%;10.2ft 4.0ft:1.3:95%;15.9ft 0.1ft:1.0:30%: 3.3ft 0.6ft:1.1:50%: 4.9ft 1.3ft:1.2:80%: 8.5ft 2.7ft:1.3:95%:13.3ft 40 --0.5ft:0,9:55%:3.3ft --0.1ft:1,0:80%:5.4ft 0.2ft:1,0:95%:8,7ft -2.0ft:0.6:75%;3.3ft -1.7ft:0.7:80%;3.9ft -1.7ft:0.8:95%;6.9ft - 2.1ft:0.6:55%:3.1ft -2.6ft:0.7:80%:4.9ft -2.3ft:0.8:95%:7.8ft -1.2ft:0.7:50%:3.1ft -1.5ft:0.8:80%:5.2ft -1.1ft:0.9:95%:7.7ft 30 <sup>1</sup> -1.1ft:0.7:60%:3.0ft -0.9ft:0.8:80%:4.6ft -1.0ft:0.9:95%:7.5ft 20 -0.1ft:1.0:45%: 3.2ft -0.1ft:1.0:50%: 6.5ft -0.2ft:1.0:80%: 9.0ft -0.4ft:1.0:95%:11.9ft 0.2ft:1,1:20%: 3.2ft 0.0ft:1,0:50%: 4.8ft 0.1ft:1,0:80%: 7.5ft 1,3ft:1,1:95%:11,1ft ~0.1ft:1.0:25%:3.1ft -0.9ft:0.9:50%:4.1ft -2.0ft:0.7:80%:5.7ft -1.8ft:0.8:95%:8.5ft 10 Ν 0 160 170 E 180° W 170° 160 150 140 130 120 110

### FIG. F8 DIFFERENCE (SOWM-SHIP) AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP PERCENTILES AND THEIR ASSOCIATED WAVE HEIGHTS

160

170

150

130

140

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Œ. 0.8ft:1.3: 5%: 3.5ft 1.5ft:1.3:20%: 6.8ft 3.7ft:1.4:50%:12.1ft 6.6ft:1.5:80%:20.0ft 6.8ft:1.3:95%:28.2ft 1.8ft:1.6: 5%: 4.6ft 4.3ft:1.9:20%: 9.3ft 6.7ft:1.8:50%:14.9ft 8.9ft:1.6:80%:22.8ft 8.2ft:1.3:95%:32.3ft 3.4ft:2.3: 5%: 6.1ft 5.1ft:2.0:20%:10.2ft 7.6ft:1.9:50%:16.2ft 10.1ft:1.7:80%:23.9ft 12.8ft:1.6:95%:34.9ft 1,3ft:1,5: 5%: 4.2ft 2,8ft:1,5:20%: 8.2ft 4,4ft:1,5:50%:13.5ft 6,4ft:1,4:80%:20.9ft 4,7ft:1,2:95%:27,4ft 40 0.4ft:1.1:10%: 3.4ft 0.7ft:1.2:20%: 4.7ft 1.1ft:1.2:50%: 8.6ft 1.8ft:1.2:80%:13.8ft 1.7ft:1.1:95%:19.6ft -0.5ft:0.9:10%: 3.2ft -1.7ft:0.7:20%: 4.1ft -0.7ft:0.9:50%: 7.2ft -0.3it:1.0:80%:10.9ft -0.8ft:1.0:95%:15.9ft 30 0.3ft:1,1:15%: 3.3ft 0.2ft:1,1:20%: 3.6ft 0.2ft:1,0:50%: 6.5ft 1.1ft:1,1:80%:10.7ft 0.6ft:1,0:95%:15.3ft -0.2ft:0.9:30%: 3.2ft 0.1ft:1.0:50%: 4.8ft 0.1ft:1.0:80%: 8.1ft -0.4ft:1.0:95%:13.1ft 20 0.5ft:1.2:10%: 3 1ft 0.6ft:1.2:20%: 3.8ft 1.1ft:1.2:50%: 6.5ft 0.6ft:1.1:80%: 9.0ft -0.1ft:1.0:95%:11.9ft 0.7ft:1.3\*13%: 3.2ft 1.0ft:1.3.20%: 3.9ft 1.9ft:1.4:50%: 6.6ft 1.4ft:1.2:80%: 9.1ft 2.4ft:1.2:95%:13.4ft 10 L 0 100 110 120 130 140 150 160° 170 E 180 170 160

### AND RATIOS (SOWM/SHIP) OF SOWM AND SHIP WAVE HEIGHTS FOR SELECTED SOWM ASSOCIATED WAVE HEIGHTS

1330017	TED WAVE HEIGHTS	,			
(5.)	160 170 F 1	80 W 170	·6050	140 130 120	110 70
				NOVEMBER	
	0.8ft:1,3: 59		•		60
	1.5ft: 1.3: 20° 3.7ft: 1.4:50° 6.6ft: 1.5:80° 6.8ft: 1.3:95°	6:12.1ft 6:20.0ft	1.3ft:1.5: 5%: 3. 3.5ft:1.9:20%: 7.1 6.1ft:1.8:50%:13. 9.5ft:1.8:80%:21. 9.6ft:1.5:95%:30.	5ft 4ft 2ft	
	3.4ft;2.3: 5%: 6.1ft 5.1ft;2.0:20%:10.2ft	8.9ft: 1.6	: 5%: 4.6ft :20%: 9.3ft :50%: 14.9ft :95%:32.8ft :95%:32.3ft 3.0ft: 1.6: 50 5.5ft: 1.6: 50 5.9ft: 1.4:800 5.1ft: 1.2: 50	6: 9.2ft 6:15.4ft 6:22.4ft	50
1:10%: 3.4ft	7.6ft:1.9:50%:16.2ft 10.1ft:1.7:80%:23.9ft 12.8ft:1.6:95%:34.9ft	1.3ft:1.5: 5%: 4.2ft 2.8ft:1.5:20%: 8.2ft 4.4ft:1.5:50%:13.5ft 6.4ft:1.4:80%:20.9ft	3.11d 12.39	1.1ft::1.4:10%: 3.7ft 2.3ft:1.7:20%: 5.7ft 3.9ft:1.6:50%:10.5ft	40
1:10%: 3.4ft 2:20% 4.7ft 2:50%: 8.6ft 2:50%: 13.8ft 1:95%:19.6ft	-0.5ft:0.9:10%: 3.2ft -1.7ft:0.7:20%: 4.1ft -0.7ft:0.9:50%: 7.2ft -0.3ft:1.0:80%:10.9ft -0.8ft:1.0:95%:15.60	0.3ft:1.1:15%: 3 0.2ft:1.1:20%: 3 0.2ft:1.1:20%: 3	3.6ft 3.6ft	5.7ft:1.5:80%:16.9ft 5.2ft:1.3:95%:23.5ft it t	30
		1,1ft:1.1:80% 16 0.8ft:1,0:95%:16	5.3 <del>11</del>	[ <b>•</b> ]	· 20
7%: 3.2ft 7%: 3.9ft 7%: 6.8ft 7%: 9.1ft 5%:13.4ft	0.5ft:1.2:10%: 3.1ft 0.6ft:1.2:20%: 3.8ft 1.1ft:1.2:50%: 6.5ft 0.6ft:1.1:80%: 9.0ft -0.1ft:1.0:95%:11.9ft		0.0ft:1.0:15%:3.0ft 0.0ft:1.0:20%:3.3ft -0.9ft:0.9:50%:5.1ft -1.4ft:0.8:96%:7.6ft -2.2ft:0.8:95%:9.5ft	0.3ft:1.1:15%: 3.2ft 0.4ft:1.1:20%: 3.5ft 0.3ft:1.1:50%: 5.5ft 0.4ft:1.1:80%: 8.4ft 1.2ft:1.1:95%:12.4ft	. 10°
9%: 9,1ft 5%:13,4ft					N
150	160° 170 E 1	80 W 170	160 150	140 130 120	110

321

 $\mathcal{L}$ 

							1	·		
FIG. F9	OF SOWM A	(SOWM-ARMY ND ARMY WA ENTILES AND	VE HEIGH	HTS FOR S	ELECTE	D	FIG. F10	DIFFERENCE ( OF SOWM A SOWM PERCE HEIGHTS		
70	O E 180 W	170 160	150	140	130	70	70	'O E 180 W		
				FEBR	UARY					
60				The state of		60	60			
1	-6.9ft: 0.3: 5%: 3.2ft -2.7ft: 0.8:20%: 9.9ft -1.1ft: 0.9:50%: 15.4ft 0.6ft: 1.0:80%: 22.3ft 4.5ft: 1.2:95%: 32.7ft		-2.9ft:0.6: 5%: -2.3ft:0.8:20%: -1.1ft:0.9:50%: 2.4ft:1.1:80%:2 7.5ft:1.3:95%:3	8.7ft 13.9ft !1.9ft	9.1ft 15.4ft 23.2ft 12.3ft 3.6ft 5.4ft 10.1ft	50	50	-3.5ft:0.5:10%: 3.3ft -3.2ft:0.8:20%: 4.4ft -1.9ft:0.8:50%: 8.4ft 0.6ft:1.0:80%:14.2ft 4.0ft:1.2:95%:22.3ft		
40				2.01.1.1.33.8.2	22.511	40	40			
30		-5.1ft: 0.4:15% -5.6ft: 0.4:20% -5.9ft: 0.5:50% -5.4ft: 0.6:80% -5.4ft: 0.7:95%	3.3ft 5.3ft 8.0ft			30	30			
20		0				20	20			
10						10	10			
N						N	N			
0°	0 E 180 W	170 160	150	140	130	0	0 17	0 E 180 W		

DS (SOWM/AR 5 FOR SELECTE CIATED WAVE	D	FIG. I	F10	DIFFERENCE (SOWM-ARMY) AND RATIOS (SOWM/ARMY OF SOWM AND ARMY WAVE HEIGHTS FOR SELECTED SOWM PERCENTILES AND THEIR ASSOCIATED WAVE HEIGHTS									
140 130	70	70	170	Ε	180	W	170	160	150	140	130	70	
		:										; ;	
FEBRUARY										ı	MAY	:	
·	60	60										60	
t t t t t t t t t t t t t t t t t t t									-0.9ft: 0.8:15%: -0.9ft: 0.8:20%: -0.1ft: 1,0:50%: 3.0ft: 1,3:80%: 5.3ft: 1.4:95%:	3.9ft 7.9ft 14.4ft		:	
-4.0ft:0.6: 5% 4.9ft -3.4ft:0.7:20% 9.1ft -1.4ft:0.9:50%:15.4ft 1.7ft:1.1:80%:23.2ft 6.1ft:1,2 95%:32.3ft	50	50		-3.5ft;0.5:10%: 3.3ft -3.2ft;0.6:20" 4.4ft						-1.4ft:0.7:109 -2.0ft:0.7:209 0.6ft:1.1:509 2.5ft:1.2:809 5.8ft:1.4:959	6: 4.6ft 6: 9.0ft 6:13.7ft	50	
-3,2ft:0,5:10%: 3,6ft 2,4ft:0,7:20%: 5,4ft -0.9ft:0,9:50%:10,1ft 0,4ft:1,0:80%:15,5ft 2,8ft:1,1:95%:22,5ft	40	40	1. 0	~1.9ft:0.8: 0.6ft:1.0:	1.9ft: 1.0:80%; 14.2 J. Oft: 1.2:95%; 22.3	50%: 8.4ft B0%:14,2ft					-3.7ft:0.5:15 -3.6ft:0.5:20 -2.3ft:0.7:50 -1.6ft:0.9:80 0.4ft:1.0:95	%: 3.4ft %: 6.4ft %: 9.7ft _	40
	30	30										30	
	20	20						-3.9ft: 0,5:50%:3. -3.6ft: 0,6:80%:5: -1.8ft: 0,8:95%:8.	2ft 2ft Oft			20	
	10	10										10	
	N	N										N	
140 130	0	0	170	Ε	180	W	170	160	150	140	130	0	

FIG. FII DIFFERENCE (SOWM-ARMY) AND RATIOS (SOWM/ARMY)
OF SOWM AND ARMY WAVE HEIGHTS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WAVE
HEIGHTS

160

11,15

140

 $\{1,5\}$ 

170

FIG. F12 DIFFERE OF SOWM | SOWM | HEIGHT:

1.00

-3.4ft:0.5: 5%; 4.7 -3.4ft:0.7:20%: 9.5 -1.5ft:0.9:50%:15.3 0.7ft:1.0:80%:23.2 4.0ft:1.1:95%:34.1

180

### AUGUST

60 60  $\mathbf{t}^{(i,j)}$ -1.0ft:0.8:25%: 3.3ft -1.1ft:0.8:50%: 5.3ft 0.3ft:1.0:80%: 9.2ft 1.7ft:1.2:95%:13.5ft 50 -1.7ft:0.7:30%: 3.1ft -1.5ft:0.8:50%: 4.9ft -0.3ft:1.0:80%: 8.4ft 1.1ft:1.1:95%:12.3ft 50 50 -2.6ft:0.6:20%: 3.1ft -2.4ft:0.7:50%: 5.8ft -1.5ft:0.9:80%: 9.8ft 0.1ft:1.0:95%:15.0ft -2.5ft:0.6:30%: 3.3ft -2.6ft:0.6:50%: 4.7ft -1.6ft:0.8:80%: 7.6ft -1.5ft:0.9:95%:10.0ft 40 40 40 30 30 30 -3.3ft:0,5:50%:3.0ft -3.3ft:0,6:80%:5.0ft -1.9ft:0,8:95%:7,6ft 20 <u>;</u>() 20 10 10 10 N 0 0 Ε 180 W 170 160 150 140 130 170 E TIOS (SOWM/ARMY)
HTS FOR SELECTED
SOCIATED WAVE

FIG. F12 DIFFERENCE (SOWM-ARMY) AND RATIOS (SOWM/ARMY)
OF SOWM AND ARMY WAVE HEIGHTS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WAVE
HEIGHTS

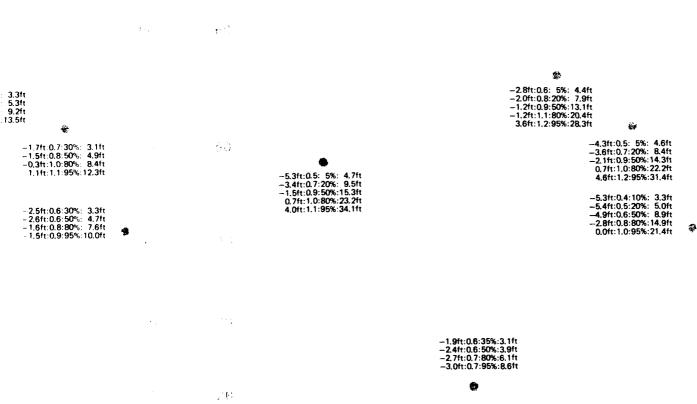
AND THE WALL AND THE COURT OF THE COURT

**AUGUST** 

140

(30)

**NOVEMBER** 



 $\pm 0$ 

N

0 170 E 180 W 170 160 150 140 130

 $\lambda$ 

FIG. F13 DIFFERENCE (SOWM-BUOY) AND RATIOS (SOWM/BUOY)
OF SOWM AND BUOY WIND SPEEDS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WIND
SPEEDS

FIG. F14 DIFFERENCE OF SOWM PERO SPEEDS

#### **FEBRUARY**

0.6kn:1.2: 5%: 4.6kn 1.5kn:1.2:20%: 9.5kn 1.9kn:1.1:50%:16.9kn 2.4kn:1.2:80%:26.4kn 6.6kn:1.2:95%:36.6kn

1.0kn:1.2: 5%: 6.0kn 2.8kn:1.3:20%:12.8kn 4.3kn:1.3:50%:21.3kn 7.1kn:1.3:80%:32.1kn 12.3kn:1.4:95%:43.3kn

0.3kn:1.1: 5%: 5.3kn 0.9kn:1.1:20%:11.9kn 2.7kn:1.2:50%:20.7kn 5.4kn:1.2:80%:31.4kn 8.8kn:1.3:95%:41.8kn

-0.4kn:0.9: 5%: 4.6kn 0.6kn:1.1:20%:10.6kn 1.6kn:1.1:50%:18.6kn 3.2kn:1.1:80%:27.2kn 8.5kn:1.3:95%:38.5kn

-2.4kn:0.7: 5%: 5.6kn -3.1kn:0.8:20%:11.9kn -0.7kn:1.0:50%:20.3kn 2.4kn:1.1:80%:29.4kn -0.7kn:1.0:95%:33.3kn

0.9kn:1.2: 5%: 4.9kn -0.1kn:1,0:20%: 9.9kn 1.1kn:1,1:50%:17,1kn 4.6kn:1,2:80%:26,6kn 8.4kn:1,3:95%:36,4kn

170 E 180 W 170

16C

150

140

130

0 170 **(** 180 & IOS (SOWM/BUOY)
FOR SELECTED
CIATED WIND

FIG. F14 DIFFERENCE (SOWM-BUOY) AND RATIOS (SOWM/BUOY)
OF SOWM AND BUOY WIND SPEEDS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WIND
SPEEDS

#### **FEBRUARY**

MAY

4.6kn 9.5kn 16.9kn 26.4kn 36.6kn

%: 5.3kn %:11.9kn %:20.7kn \$:31.4kn %:41.8kn

kn:0.9: 5%: 4.6kn kn:1.1:20%:10.6kn kn:1.1:50%:18.6kn kn:1.1:50%:27.2kn kn:1.3:95%:38.5kn

> 0.9kn:1,2: 5%: 4.9kn -0.1kn:1,0:20%: 9.9kn 1.1kn:1,1:50%:17,1kn 4.6kn:1,2:80%:26,6kn 8.4kn:1,3:95%:36,4kn

> > :30

-1.4kn:0.8:10%: 4.6kn -0.9kn:0.9:20%: 7.1kn 0.6kn:1.1:50%:13.6kn 2.2kn:1.1:80%:21.2kn 6.1kn:1.3:95%:30.1kn

0.1kn:1.0: 5%: 5.1kn -0.3kn:1.0:20%: 9.7kn 2.2kn:1.2:50%:17.2kn 6.0kn:1.3:80%:26.0kn 8.5kn:1.3:95%:34.5kn

0.8kn:1.2: 5%: 4.8kn -0.4kn:1.0:20%: 9.6kn 0.3kn:1.0:50%:16.3kn 4.3kn:1.2:80%:25.3kn 9.0kn:1.4:95%:35.0kn

-0.5kn:0.9: 5%: 3,5kn -0.9kn:0.9:20%: 7,1kn -1.5kn:0.9:50%:12,5kn 0.3kn:1.0:80%:19,3kn 3.1kn:1,1:95%:27,1kn

-0.5kn:0.8:10%: 4.5kn -1.2kn:0.9:20%: 6.8kn -0.6kn:1.0:50%:12.4kn 1.4kn:1.1:80%:19.4kn 3.9kn:1.2:95%:26.9kn

-1.1kn:0.8:10%: 4.9kn -0.6kn:0.9:20%: 7.4kn -0.4kn:1.0:50%:12.6kn 0.3kn:1.0:80%:18.3kn 3.3kn:1.2:95%:25.3kn

, 50

Hyer

FIG. F15 DIFFERENCE (SOWM-BUOY) AND RATIOS (SOWM/BUOY)
OF SOWM AND BUOY WIND SPEEDS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WIND
SPEEDS

FIG. F16 DIFFERE OF SO' SOWM SPEEDS

#### **AUGUST**

-0.4kn:0.9:10%: 4.6kn -0.1kn:1.0:20%: 6.9kn -0.4kn:1.0:50%:11.6kn 0.8kn:1.1:80%:16.8kn 2.0kn:1.1:95%:23.0kn

-1.6kn:0.8:10%: 5.4kn -0.6kn:0.9:20%: 8.4kn 0.7kn:1,1:50%:14.7kn 2.2kn:1,1:80%:21.2kn 4.5kn:1,2:95%:28.5kn

-1.6kn:0,7:10%: 4,4kn -1.4kn:0.8:20%: 6,6kn -1.8kn:0.9:50%:11,2kn -0.6kn:1.0:80%:16,4kn 1,7kn:1,1:95%:23,7kn

> -2.5kn:0.6:15%: 4.5kn -2.5kn:0.7:20%: 5.5kn -3.5kn:0.7:50%: 9.5kn -2.4kn:0.9:80%:14.6kn -2.4kn:0.9:95%:19.6kn

-2.0kn:0.7:15%: 4.0kn -2.3kn:0.7:20%: 4.7kn -3.4kn:0.7:50%: 8.6kn -2.3kn:0.9:80%:13.7kn -1.2kn:0.9:95%:18.8kn

-1.1kn:0.8:10%: 3.9kn -0.6kn:0.9:20%: 6.4kn -0.9kn:0.9:50%:11.1kn 0.1kn:1,0:80%:16.1kn 1.1kn:1.1:95%:21.1kn ATIOS (SOWM/BUOY)
DS FOR SELECTED
SOCIATED WIND

FIG. F16 DIFFERENCE (SOWM-BUOY) AND RATIOS (SOWM/BUOY)
OF SOWM AND BUOY WIND SPEEDS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WIND
SPEEDS

#### **AUGUST**

#### **NOVEMBER**

9 10% 4.6kn 0 20% 6.9kn 0 50% 11.6kn 1 80% 16.8kn 1 95% 23.0kn

0.7:10%: 4.4kn 0.8:20%: 6.6kn 0.9:50%:11.2kn 1.0:80%:16.4kn 1.1:95%:23.7kn

> -2.5kn:0.6:15%: 4.5kn -2.5kn:0.7:20%: 5.5kn -3.5kn:0.7:50%: 9.5kn -2.4kn:0.9:80%:14.6kn -2.4kn:0.9:95%:19.6kn

4.0kn 4.7kn 8.6kn 13.7kn 18.8kn

-1,1kn:0.8:10%: 3,9kn -0,6kn:0.9:20%: 6,4kn -0.9kn:0.9:50%:11,1kn 0,1kn:1.0:80%:16,1kn 1,1kn:1,1:95%:21,1kn 0.4kn:1.1: 5%: 4.4kn 1.0kn:1.1:20%:1 <sup>3</sup> Jkn 1.5kn:1.1:50%:17.5kn 3.7kn:1.2:80%:26.7kn 7.7kn:1.3:95%:36.7kn

-0.9kn:0.9: 5%: 6.1kn -0.4kn:1.0:20%:12.6kn 1.3kn:1.1:50%:21.3kn 4.5kn:1.2:80%:30.5kn 6.5kn:1.2:95%:39.5kn

1.7kn:1.3: 5%: 6.7kn 1.7kn:1.2:20%:12.7kn 1.9kn:1.1:50%:20.9kn 5.3kn:1.2:80%:30.3kn 6.2kn:1.2:95%:40.2kn

> 0.7kn:1.2: 5%: 4.7kn -0.1kn:1.0:20%: 9.9kn -1.1kn:0.9:50%:16.9kn 1.4kn:1.1:80%:26.4kn 6.9kn:1.2:95%:37.9kn

--2.3kn:0.7: 5%: 4,7kn --4.0kn:0.7:20%:10.0kn --2.1kn:0.9:50%:17.9kn -0.7kn:1,0:80%:26.3kn 3.4kn:1,1:95%:36.4kn

-0.7kn:0.9: 5%: 4.3kn -0.9kn:0.9:20%: 9.1kn -0.1kn:1.0:50%:16.9kn 3.4kn:1.2:80%:25.4kn 6.3kn:1.2:95%:34,3kn



FIG. F17 DIFFERENCE (SOWM-BUOY) AND RATIOS (SOWM/BUOY)
OF SOWM AND BUOY WAVE HEIGHTS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WAVE
HEIGHTS

### FIG. F18 DIFFERENCI OF SOWM SOWM PER HEIGHTS

#### **FEBRUARY**

-0.3ft:0.9: 5%: 4.6ft 2.1ft:1.3:20%: 8.7ft 4.1ft:1.4:50%:13.9ft 8.8ft:1.7:80%:21.9ft 13.3ft:1.7:95%:31.3ft 鏬 1,5ft:1.2: 5%: 8.1ft 1,9ft:1.2:20%:10,1ft 4,6ft:1.4:50%:16,1ft 9.8ft:1.7:80%:24,6ft 14.8ft:1.8:95%:32,8ft -1.7ft:0.8: 5%: 4.9ft 0.9ft:1.1:20%: 9.1ft 3.9ft:1.3:50%:15.4ft 8.4ft:1.6:80%:23.2ft 12.6ft:1.6:95%:32.3ft -1.3ft:0.7: 5%: 3.6ft -0.7ft:0.9:20%: 7.5ft 1.8ft:1.2:50%:13.3ft 5.6ft:1.4:80%:20.4ft -0.7ft:0.9: 5%: 4.2ft -0.4ft:1.0:20%: 7.8ft 0.1ft:1.0:50%:13.2ft 3.1ft:1.2:80%:19.5ft 3.5ft:1.2:95%:26.5ft 40 315 -1.8ft:0.6: 5%: 3.1ft -0.5ft:0.9:20%: 6.1ft 1.5ft:1.2:50%:11.3ft 2.7ft:1.2:80%:17.5ft 6.3ft:1.4:95%:24.3ft 30 3() 20  $\mathcal{F}(t)$ 10 10

160

150

140

10 N O 170 E 180 W

N

0

130

0

170 E 180 W 170

N

(SOWM/BUOY)
DR SELECTED
ATED WAVE

FIG. F18 DIFFERENCE (SOWM-BUOY) AND RATIOS (SOWM/BUOY)
OF SOWM AND BUOY WAVE HEIGHTS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WAVE
HEIGHTS

**FEBRUARY** 

MAY

-1.5ft:0.7:15%: 3.4ft -1.0ft:0.8:20%: 3.9ft 1.3ft:1.2:50%: 7.9ft 4.6ft:1.5:50%:14.4ft 6.8ft:1.5:5%:19.9ft

-1.7ft:0.7:15%: 3.2ft -1.3ft:0.7:20%: 3.6ft 0.1ft:1.0:50%: 6.7ft -1.0ft:0.9:80%: 8.8ft 5.1ft:1.4:95%:18.2ft

-0.1ft:1.0:10%: 3.2ft -0.3ft:0.9:20%: 4.6ft 2.4ft:1.4:50%: 9.0ft 3.9ft:1.4:80%:13.7ft 7.1ft:1.5:95%:20.2ft

> -0.1°: ..0:15%: 3.2ft 0.3ft:1.1:20%: 3.6ft 0.4ft:1.1:50%: 7.0ft 3.4ft:1.4:80%:11.6ft 5.2ft:1.5:95%:16.7ft

-1,9ft:0.6:30%: 3.0ft -0.6ft:0.9:50%: 4.3ft -0.7ft:0.9:80%: 7.5ft 1,6ft:1.2:95%:11,4ft

-1.7ft:0.7:20%: 3.2ft -0.9ft:0.9:50%: 5.7ft 0.8ft:1.1:80%: 9.0ft 2.6ft:1.2:95%:14.1ft

1.8ft.0.6: 5%: 3.1ft 0.5ft:0.9:20%: 6.1ft 1.5ft:1.2:50%:11.3ft 2.7ft:1.2:80%:17.5ft 6.3ft:1.4:95%:24,3ft

0.7: 5%: 3.6ft 0.9:20%: 7.5ft 1.2:50%: 13.3ft 1.4:80%: 20.4ft 1.5:95%: 27.7ft

Ю

130

N

0

170 E 180 W 170

160

150

140

130

1

FIG. F19 DIFFERENCE (SOWM-BUOY) AND RATIOS (SOWM/BUOY)
OF SOWM AND BUOY WAVE HEIGHTS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WAVE
HEIGHTS

FIG. F20 DIFFERENC OF SOWN SOWN PEI HEIGHTS

#### **AUGUST**

0.0ft:1.0:25%: 3.3ft
0.4ft:1.1:50%: 5.3ft
2.6ft:1.4:80%: 9.2ft
3.7ft:1.4:95%:13.5ft

-0.2ft:1.0:30%: 3.1ft
0.0ft:1.0:50%: 4.9ft
2.8ft:1.3:80%:15.9ft

-0.2ft:1.0:30%: 8.4ft
1.8ft:1.3:80%: 8.4ft
2.5ft:1.3:80%: 8.4ft
2.5ft:1.3:95%:12.3ft

-1.6ft:0.7:55%:3.3ft
-0.6ft:0.9:80%: 6.0ft
0.4ft:1.0:95%:10.2ft

-1.8ft:0.7:55%:3.3ft
-1.0ft:0.9:80%: 5.8ft
-1.9ft:0.6:40%:3.0ft
-1.2ft:0.8:50%:3.7ft
-0.1ft:1.0:80%:6.5ft
-0.7ft:0.9:95%:9.1ft

317

0

30

0

170 E 180

10

N

0

170 E 180 W 170

160

150

140

ATIOS (SOWM/BUOY)
HTS FOR SELECTED
SSOCIATED WAVE

FIG. F20 DIFFERENCE (SOWM-BUOY) AND RATIOS (SOWM/BUOY)
OF SOWM AND BUOY WAVE HEIGHTS FOR SELECTED
SOWM PERCENTILES AND THEIR ASSOCIATED WAVE
HEIGHTS

[+:4]

150

i \*

**NOVEMBER AUGUST** -5.5ft:0.9: 5%: 4.4ft 1.3ft:1.2:20%: 7.9ft 3.3ft:1.3:50%:13.1ft 5.6ft:1.4:80%:20.4ft 8.6ft:1.4:95%:28.3ft 1.0:25%: 3.3ft 1.1:50%: 5.3ft 1.4:80%: 9.2ft 1.4:95%:13.5ft -1.5ft:0.8: 5%: 5.1ft 1.3ft:1.2:20%: 9.5ft 3.1ft:1.3:50%:14.6ft 4.8ft:1.3:80%:21.2ft -2.0ft:0.7: 5%: 4.6ft 0.2ft:1.0:20%: 8.4ft 2.8ft:1.3:50%:14,3ft 5.8ft:1.4:80%:22.2ft 10.1ft:1.5:95%:31.4ft ft:1,0:30%: 3,1ft 0ft:1,0:50%: 4,9ft 8ft:1,3:80%: 8,4ft 5ft:1,3:95%:12,3ft -1.6ft:0,7:45%: 3,3ft -1.3ft:0,7:50%: 3,6ft -0.6ft:0,9:80%: 6,0ft 0.4ft:1,0:95%:10,2ft -1.5ft:0.7: 5%: 3.4ft -1.2ft:0.9:20%: 7.0ft 0.6ft:1.1:50%:12.1ft 4.4ft:1.3:80%:19.2ft 7.2ft:1.3:90%:28.5ft -2.7ft:0.6:10%: 3.9ft -1.9ft:0.8:20%: 6.3ft -0.3ft:1.0:50%:11.2ft 1.2ft:1.1:80%:17.6ft 1.0ft:1.0:95%:24.0ft :55%:3.3ft :80%:5,6ft :95%:8.8ft 45 -1.9ft:0.6:40%:3.0ft -1.2ft:0.8:50%:3.7ft -0.1ft:1.0:80%:6.5ft -0.7ft:0.9:95%:9.1ft -2.9ft:0.6:10%: 3.7ft -2.2ft:0.7:20%: 6.0ft 0.6ft:1,1:50%:10.4ft 1.6ft:1.1:80%:16.4ft 1.5ft:1,1:95%:22.8ft 30 20 10 . ΙĹ. M N 0 0 170 E 180 W 170 160 150 140 130 140 130 327

The second section (1981)

### **BIBLIOGRAPHY**

- Bales, S. L., 1983: Designing ships to the natural environment. Naval Engineers Journal, March 1983, 31-40.
- Cardone, V. J., 1969: Specification of the wind distribution in the marine boundary layer for wave forecasting. New York University, 147 pp.
- Cartwright, D. E., 1964: A comparison of instrumental and visually estimated wave heights and periods recorded on Ocean Weather Ships. Appendix to Hogben, N. and F. E. Lumb, 1964: The presentation of wave data from voluntary observing ships, National Physical Laboratory, SHIP REF. 49.
- Comstock, E. N., S. L. Bales and D. M. Gentile, 1982: Seakeeping performance comparison of air capable ships. Naval Engineers Journal, April 1982, 101-117.
- Cummins, W. E. and S. L. Bales, 1980: Extreme values and rare occurrence wave statistics for Northern Hemispheric shipping lanes. SNAME STAR.
- Corson, W. D, 1984: U.S. Army Hydraulics Laboratory. Personal Communications.
- Darbyshire, M. and L. Draper, 1963: Forecasting wind-generated sea waves. Engineering (London), 195, 482-484.
- Dexter, P. E., 1974: Tests of some programmed numerical wave forecast models.

  Oceanogr., 4, 635-644.
- Dobson, F. W., 1981: Review of reference height for averaging time of surface wind measurements at sea. World Meteorological Organization, Marine Meteorology and Related Oceanographic Activities, Report No. 3.
- Gentile, D. M., 1982: ORI, Incorporated, Silver Spring, Maryland. Personal Communication.

- Hubert, W. E. and B. R. Mendenhall, 1970: The FNWC Singular Sea/Swell Model, Technical Note 59, Fleet Numerical Weather Center, Monterey, California.
- Jardine, T. P., 1979: The reliability of visually observed wave heights. Coastal Engineering, 3, 33-38.
- Jardine, T. P., and F. R. Lathan, 1981: An analysis of wave height records for the Northeast Atlantic. Q.J.R.M.S., 107, 415-426.
- Lazanoff, S. M., 1981: Fleet Numerical Oceanography Center, Monterey, California. Personal communication.
- Lazanoff, S. M., N. M. Stevenson, 1975: An Evaluation of a Hemispheric Operational Wave Spectral Model. Fleet Numerical Weather Center, Monterey, California.
- Mendenhall, B. R., M. M. Hale, and M. J. Cumming, 1977: Development of a marine history of analyzed sea level pressure fields and diagnosed wind fields. Fleet Numerical Weather Center, NOO228-76-C3273, Monterey, CA 93940, June 1977.
- Mendenhall, B. R., 1984: Science Applications.
  International Corporation. Personal
  Communication.
- Nordenstrom, N., 1969: Methods for predicting long-term distributions of wave loads and probability of failure for ships. App. II, Relationships between visually estimated and theoretical wave heights and periods, DnV Report No. 69-21-5, Oslo, Norway.
- NOAA Data Buoy Office, 1981 Personal Communication.
- Pierson, W. J., Jr., 1982: The spectral ocean wave model (SOWM), a Northern Hemisphere computer model for specifying and forecasting ocean wave spectra. David W. Taylor Naval Ship Research and Development Center, DTNSRDC-82/011, Bethesda, Maryland 20084, July 1982.

- rt, W. E. and B. R. Mendenhall, 1970: The WC Singular Sea/Swell Model, <u>Technical Note</u>, Fleet Numerical Weather Center, Monterey, lifornia.
- ine, T. P., 1979: The reliability of sually observed wave heights. <u>Coastal</u> gineering, 3, 33-38.
- ine, T. P., and F. R. Lathan, 1981: An alysis of wave height records for the rtheast Atlantic. Q.J.R.M.S., 107, 415-426.
- noff, S. M., 1981: Fleet Numerical eanography Center, Monterey, California rsonal communication.
- noff, S. M., N. M. Stevenson, 1975: An aluation of a Hemispheric Operational Wave ectral Model. Fleet Numerical Weather nter, Monterey, California.
- enhall, B. R., M. M. Hale, and M. J. mming, 1977: Development of a marine story of analyzed sea level pressure fields d diagnosed wind fields. Fleet Numerical ather Center, NOO228-76-C3273, Monterey, CA 940, June 1977.
- enhall, B. R., 1984: Science Applications. ternational Corporation. Personal mmunication.
- enstrom, N., 1969: Methods for predicting ng-term distributions of wave loads and obability of failure for ships. App. II, lationships between visually estimated and eoretical wave heights and periods, DnV port No. 69-21-5, Oslo, Norway.
- Data Buoy Office, 1981 Personal maunication.
- son, W. J., Jr., 1982: The spectral ocean we model (SOWM), a Northern Hemisphere aputer model for specifying and forecasting can wave spectra. David W. Taylor Naval p Research and Development Center, NSRDC-82/011, Bethesda, Maryland 20084, by 1982.

- Pierson, W. J., Jr., G. Newman, and R. W. James, 1955: Practical Methods of Observing and Forecasting Ocean Waves by Means of Wave Spectra and Statistics, U. S. Navy Hydrographic Office.
- Quayle, R. G., 1974: A climatic comparison of ocean weather stations and transient ship records. Mariners Weather Log, 18, 307-311.
- Quayle, R. G., 1980: Climatic comparisons of estimated and measured winds from ships. JAM, 19, 142-156.
- Quayle, R. G. and M. J. Changery, 1982: Preliminary height and period adjustments for visual wave data. Mariners Weather Log, 26, 2-3.
- Resio, D. T., 1981: The estimation of wind-wave generation in a discrete spectral model. J. Phys. Oceanogr., 11, 511-525.
- Resio, D. T. and C. L. Vincent, 1979: A comparison of various numerical wave prediction techniques. Presented at Offshore Technology Conference, Houston, Mar. Tech. Soc. and Amer. Soc. of Civ. Eng., Paper 3642.
- Silver, A. L., and S. L. Bales, 1983:
  Application of Numerical Wave Models to
  Analysis of FF-1052 Class Casualties. David
  W. Taylor Naval Ship Research and Development
  Center, DTNSROC/SPD-1008-01, Bethesda,
  Maryland 20084, January 1983.
- U. S. Army Hydraulics Laboratory: Surface
  Pressure Field Reconstruction for Wave
  Hindcasting Purposes, WIS Report 1, July 1980.
  U. S. Army Engineer Waterways Experiment
  Station, P. O. Box 631, Vicksburg, Mississippi
  39180.
- U. S. Army Hydraulics Laboratory: Pacific Coast
  Hindcast, Deep Water, Significant Wave
  Information, WIS Report 14, In Press. U. S.
  Army Engineer Waterways Experiment Station,
  P. O. Box 631, Vicksburg, Mississippi 39186.

- U. S. Army Hydraulics Laboratory: Objective
  Specification of Atlantic Ocean Wind Fields
  from Historical Data, WIS Report 4, May 1982.
  U. S. Army Engineer Waterways Experiment
  Station, P. O. Box 631, Vicksburg, Mississippi
  39180.
- U. S. Department of Commerce: Climatic
  Summaries for NOAA Data Buoys. January 1983.

  National Oceanic and Atmospheric
  Administration, National Weather Service, NOAA
  Data Buoy Center, NSTL Station, Mississippi
  39529.
- U. S. Navy, Naval Weather Service Command:

  Marine Climatic Atlas of the World, Volume 1

  (Revised), North Pacific Ocean. NAVAIR

  50-1C-529, 1977.
- U. S. Navy, Naval Weather Service Command:

  Numerical Environmental Products Manual.

  NAVAIR 50-1G-522, June 1975.
- U. S. Navy, Naval Oceanographic Office: Monthly Charts of Mean, Minimum, and Maximum Sea Surface Temperature of the North Pacific Ocean. SP-123, Washington, DC 20373, 1969.
- U. S. Navy, Naval Oceanography Command:

  Navy Hindcast Spectral Ocean Wave Model

  Climatic Atlas: North Atlantic Ocean. NAVAIR

  50-1C-538, 1983.
- World Meteorological Organization, 1960: Guide to Climatological Practices (Supplement No. 5, 1966). Geneva, Switzerland, P. IX. 32.
- World Meteorological Organization, 1976: Handbook on Wave Analysis and Forecasting WHO No. 446, Geneva, Switzerland.
- World Meteorological Organization, 1981: WMO Guide to Marine Meteorological Services, 1981. See WMO Resolution 35 (Congress IV) as amended by recommendation 36 (1968-CMM).